

NVIDIA Performance Primitives (NPP)
Version 5.0

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Chapter 1

NVIDIA Performance Primitives

IMPORTANT SPECIAL NOTICE As of NPP version 5.0 and beyond a few parameters for a few pre-5.0 existing image LUT functions have changed from host memory pointers to device memory pointers. Your application will fail (crash or report an error) if you use these functions with host memory pointers. The functions are the nppiLUT_Linear_-8u_xxx functions.

Also, pre-5.0 function nppiMeanStdDev8uC1RGetBufferSize has been renamed nppiMeanStdDevGetBufferSize_8u_C1R.

1.1 What is NPP?

NVIDIA NPP is a library of functions for performing CUDA accelerated processing. The initial set of functionality in the library focuses on imaging and video processing and is widely applicable for developers in these areas. NPP will evolve over time to encompass more of the compute heavy tasks in a variety of problem domains. The NPP library is written to maximize flexibility, while maintaining high performance.

NPP can be used in one of two ways:

- A stand-alone library for adding GPU acceleration to an application with minimal effort. Using this route allows developers to add GPU acceleration to their applications in a matter of hours.
- A cooperative library for interoperating with a developer's GPU code efficiently.

Either route allows developers to harness the massive compute resources of NVIDIA GPUs, while simultaneously reducing development times.

1.2 Documentation

- [General API Conventions](#)
- [Signal-Processing Specific API Conventions](#)
- [Imaging-Processing Specific API Conventions](#)

1.3 Technical Specifications

Supported Platforms:

- Microsoft Windows 7 (64-bit and 32-bit)
- Microsoft Windows Vista (64-bit and 32-bit)
- Microsoft Windows XP (64-bit and 32-bit)
- Linux (Centos & Ubuntu) (64-bit and 32-bit)
- Mac OS X

1.4 Files

NPP is comprises the following files:

1.4.1 Header Files

- [nppdefs.h](#)
- [nppcore.h](#)
- [nppi.h](#)
- [npps.h](#)
- [nppversion.h](#)
- [npp.h](#)

All those header files are located in the CUDA Toolkit's

`/include/`

directory.

1.4.2 Library Files

On the Windows platform the NPP stub library is found in the CUDA Toolkit's library directory:

`/lib/npp.lib`

The matching DLL is located in the CUDA Toolkit's binary directory:

```
/bin/npp32_50_9.dll      // Dynamic library for 32-bit Windows.  
/bin/npp64_50_9.dll      // Dynamic library for 64-bit Windows.
```

On Linux and Mac platforms the dynamic libraries are located in the lib directory

```
/lib/libnpp32.so.5.0.9   // NPP 32-bit dynamic library for Linux  
/lib/libnpp64.so.5.0.9   // NPP 64-bit dynamic library for Linux  
  
/lib/libnpp32.5.0.dylib // NPP 32-bit dynamic library for Mac  
/lib/libnpp64.5.0.dylib // NPP 64-bit dynamic library for Mac
```

1.5 Supported NVIDIA Hardware

NPP runs on all CUDA capable NVIDIA hardware. For details please see
http://www.nvidia.com/object/cuda_learn_products.html

Chapter 2

General API Conventions

2.1 Memory Management

The design of all the NPP functions follows the same guidelines as other NVIDIA CUDA libraries like cuFFT and cuBLAS. That is that all pointer arguments in those APIs are device pointers.

This convention enables the individual developer to make smart choices about memory management that minimize the number of memory transfers. It also allows the user the maximum flexibility regarding which of the various memory transfer mechanisms offered by the CUDA runtime is used, e.g. synchronous or asynchronous memory transfers, zero-copy and pinned memory, etc.

The most basic steps involved in using NPP for processing data is as follows:

1. Transfer input data from the host to device using

```
cudaMemcpy(...)
```

2. Process data using one or several NPP functions or custom CUDA kernels

3. Transfer the result data from the device to the host using

```
cudaMemcpy(...)
```

2.1.1 Scratch Buffer and Host Pointer

Some primitives of NPP require additional device memory buffers (scratch buffers) for calculations, e.g. signal and image reductions (Sum, Max, Min, MinMax, etc.). In order to give the NPP user maximum control regarding memory allocations and performance, it is the user's responsibility to allocate and delete those temporary buffers. For one this has the benefit that the library will not allocate memory unbeknownst to the user. It also allows developers who invoke the same primitive repeatedly to allocate the scratch only once, improving performance and potential device-memory fragmentation .

Scratch-buffer memory is unstructured and may be passed to the primitive in uninitialized form. This allows for reuse of the same scratch buffers with any primitive require scratch memory, as long as it is sufficiently sized.

The minimum scratch-buffer size for a given primitive (e.g. [nppsSum_32f\(\)](#)) can be obtained by a companion function (e.g. [nppsSumGetBufferSize_32f\(\)](#)). The buffer size is returned via a host pointer as allocation of the scratch-buffer is performed via CUDA runtime host code.

An example to invoke Sum primitive and allocate and free the necessary scratch memory:

```
...
// Compute the appropriate size of the scratch-memory buffer
int nBufferSize;
nppsSumGetBufferSize_32f(nLength, &nBufferSize);
// Allocate the scratch buffer
Npp8u * pDeviceBuffer;
cudaMalloc((void **) &pDeviceBuffer, nBufferSize);
// Call the primitive with the scratch buffer
nppsSum_32f(pSrc, nLength, pSum, nppAlgHintNone, pDeviceBuffer);
// Free the scratch buffer
cudaFree(pDeviceBuffer);
...
```

2.2 Function Naming

Since NPP is a C API and therefore does not allow for function overloading for different data-types the NPP naming convention addresses the need to differentiate between different flavors of the same algorithm

or primitive function but for various data types. This disambiguation of different flavors of a primitive is done via a suffix containing data type and other disambiguating information.

In addition to the flavor suffix, all NPP functions are prefixed with by the letters "npp". Primitives belonging to NPP's image-processing module add the letter "i" to the npp prefix, i.e. are prefixed by "nppi". Similarly signal-processing primitives are prefixed with "npps".

The general naming scheme is:

npp<module info><PrimitiveName>_<data-type info>[_<additional flavor info>](<parameter list>)

The data-type information uses the same names as the [Basic NPP Data Types](#). For example the data-type information "8u" would imply that the primitive operates on [Npp8u](#) data.

If a primitive consumes different type data from what it produces, both types will be listed in the order of consumed to produced data type.

Details about the "additional flavor information" is provided for each of the NPP modules, since each problem domain uses different flavor information suffixes.

2.3 Integer Result Scaling

NPP signal processing and imaging primitives often operate on integer data. This integer data is usually a fixed point fractional representation of some physical magnitude (e.g. luminance). Because of this fixed-point nature of the representation many numerical operations (e.g. addition or multiplication) tend to produce results exceeding the original fixed-point range if treated as regular integers.

In cases where the results exceed the original range, these functions clamp the result values back to the valid range. E.g. the maximum positive value for a 16-bit unsigned integer is 32767. A multiplication operation of $4 * 10000 = 40000$ would exceed this range. The result would be clamped to be 32767.

To avoid the level of lost information due to clamping most integer primitives allow for result scaling. Primitives with result scaling have the "Sfs" suffix in their name and provide a parameter "nScaleFactor" that controls the amount of scaling. Before the results of an operation are clamped to the valid output-data range by multiplying them with $2^{-nScaleFactor}$.

Example: The primitive [nppsSqr_8u_Sfs\(\)](#) computes the square of 8-bit unsigned sample values in a signal (1D array of values). The maximum value of a 8-bit value is 255. The square of $255^2 = 65025$ which would be clamped to 255 if no result scaling is performed. In order to map the maximum value of 255 to 255 in the result, one would specify an integer result scaling factor of 8, i.e. multiply each result with $2^{-8} = \frac{1}{2^8} = \frac{1}{256}$. The final result for a signal value of 255 being squared and scaled would be:

$$255^2 \cdot 2^{-8} = 254.00390625$$

which would be rounded to a final result of 254.

A medium gray value of 128 would result in

$$128^2 \cdot 2^{-8} = 64$$

Chapter 3

Signal-Processing Specific API Conventions

3.1 Signal Data

Signal data is passed to and from NPPS primitives via a pointer to the signal's data type.

The general idea behind this fairly low-level way of passing signal data is ease-of-adoption into existing software projects:

- Passing the data pointer rather than a higher- level signal struct allows for easy adoption by not requiring a specific signal representation (that could include total signal size offset, or other additional information). This avoids awkward packing and unpacking of signal data from the host application to an NPP specific signal representation.

3.1.1 Parameter Names for Signal Data

There are three general cases of image-data passing throughout NPP detailed in the following sections.

Those are signals consumed by the algorithm.

3.1.1.1 Source Signal Pointer

The source signal data is generally passed via a pointer named

`pSrc`

The source signal pointer is generally defined constant, enforcing that the primitive does not change any image data pointed to by that pointer. E.g.

```
nppsPrimitive_32s(const Npp32s * pSrc, ...)
```

In case the primitive consumes multiple signals as inputs the source pointers are numbered like this:

`pSrc1, pScr2, ...`

3.1.1.2 Destination Signal Pointer

The destination signal data is generally passed via a pointer named

`pDst`

In case the primitive consumes multiple signals as inputs the source pointers are numbered like this:

`pDst1, pDst2, ...`

3.1.1.3 In-Place Signal Pointer

In the case of in-place processing, source and destination are served by the same pointer and thus pointers to in-place signal data are called:

`pSrcDst`

3.1.2 Signal Data Alignment Requirements

NPP requires signal sample data to be naturally aligned, i.e. any pointer

```
NppType * p;
```

to a sample in a signal needs to fulfill:

```
assert(p % sizeof(p) == 0);
```

3.1.3 Signal Data Related Error Codes

All NPPI primitives operating on signal data validate the signal-data pointer for proper alignment and test that the point is not null.

Failed validation results in one of the following error codes being returned and the primitive not being executed:

- **NPP_NULL_POINTER_ERROR** is returned if the image-data pointer is 0 (NULL).
- **NPP_ALIGNMENT_ERROR** if the signal-data pointer address is not a multiple of the signal's data-type size.

3.2 Signal Length

The vast majority of NPPS functions take a

```
nLength
```

parameter that tells the primitive how many of the signal's samples starting from the given data pointer are to be processed.

3.2.1 Length Related Error Codes

All NPPS primitives taking a length parameter validate this input.

Failed validation results in the following error code being returned and the primitive not being executed:

- **NPP_SIZE_ERROR** is returned if the length is negative.

Chapter 4

Imaging-Processing Specific API Conventions

4.1 Function Naming

Image processing related functions use a number of suffixes to indicate various different flavors of a primitive beyond just different data types. The flavor suffix uses the following abbreviations:

- "A" if the image is a 4 channel image this indicates the result alpha channel is not affected by the primitive.
- "Cn" the image consists of n channel packed pixels, where n can be 1, 2, 3 or 4.
- "Pn" the image consists of n separate image planes, where n can be 1, 2, 3 or 4.
- "C" (following the channel information) indicates that the primitive only operates on one of the color channels, the "channel-of-interest". All other output channels are not affected by the primitive.
- "I" indicates that the primitive works "in-place". In this case the image-data pointer is usually named "pSrcDst" to indicate that the image data serves as source and destination at the same time.
- "M" indicates "masked operation". These types of primitives have an additional "mask image" as input. Each pixel in the destination image corresponds to a pixel in the mask image. Only pixels with a corresponding non-zero mask pixel are being processed.
- "R" indicates the primitive operates only on a rectangular "region-of-interest" or "ROI". All ROI primitives take an additional input parameter of type [NppiSize](#), which specifies the width and height of the rectangular region that the primitive should process. For details on how primitives operate on ROIs see: [Region-of-Interest \(ROI\)](#).
- "Sfs" indicates the result values are processed by fixed scaling and saturation before they're written out.

The suffixes above always appear in alphabetical order. E.g. a 4 channel primitive not affecting the alpha channel with masked operation, in place and with scaling/saturation and ROI would have the postfix: "AC4IMRSfs".

4.2 Image Data

Image data is passed to and from NPPI primitives via a pair of parameters:

1. A pointer to the image's underlying data type.
2. A line step in bytes (also sometimes called line stride).

The general idea behind this fairly low-level way of passing image data is ease-of-adoption into existing software projects:

- Passing a raw pointer to the underlying pixel data type, rather than structured (by color) channel pixel data allows usage of the function in a wide variety of situations avoiding risky type cast or expensive image data copies.
- Passing the data pointer and line step individually rather than a higher- level image struct again allows for easy adoption by not requiring a specific image representation and thus avoiding awkward packing and unpacking of image data from the host application to an NPP specific image representation.

4.2.1 Line Step

The line step (also called "line stride" or "row step") allows lines of oddly sized images to start on well-aligned addresses by adding a number of unused bytes at the ends of the lines. This type of line padding has been common practice in digital image processing for a long time and is not particular to GPU image processing.

The line step is the number of bytes in a line **including the padding**. An other way to interpret this number is to say that it is the number of bytes between the first pixel of successive rows in the image, or generally the number of bytes between two neighboring pixels in any column of pixels.

The general reason for the existence of the line step is that uniformly aligned rows of pixel enable optimizations of memory-access patterns.

Even though all functions in NPP will work with arbitrarily aligned images, best performance can only be achieved with well aligned image data. Any image data allocated with the NPP image allocators or the 2D memory allocators in the CUDA runtime, is well aligned.

Particularly on older CUDA capable GPUs it is likely that the performance decrease for misaligned data is substantial (orders of magnitude).

All image data passed to NPPI primitives requires a line step to be provided. It is important to keep in mind that this line step is always specified in terms of bytes, not pixels.

4.2.2 Parameter Names for Image Data

There are three general cases of image-data passing throughout NPP detailed in the following sections.

4.2.2.1 Passing Source-Image Data

Those are images consumed by the algorithm.

4.2.2.1.1 Source-Image Pointer

The source image data is generally passed via a pointer named

`pSrc`

The source image pointer is generally defined constant, enforcing that the primitive does not change any image data pointed to by that pointer. E.g.

```
nppiPrimitive_32s_C1R(const Npp32s * pSrc, ...)
```

In case the primitive consumes multiple images as inputs the source pointers are numbered like this:

`pSrc1, pScr2, ...`

4.2.2.1.2 Source-Planar-Image Pointer Array

The planar source image data is generally passed via an array of pointers named

`pSrc[]`

The planar source image pointer array is generally defined a constant array of constant pointers, enforcing that the primitive does not change any image data pointed to by those pointers. E.g.

```
nppiPrimitive_8u_P3R(const Npp8u * const pSrc[3], ...)
```

Each pointer in the array points to a different image plane.

4.2.2.1.3 Source-Planar-Image Pointer

The multiple plane source image data is passed via a set of pointers named

```
pSrc1, pSrc2, ...
```

The planar source image pointer is generally defined as one of a set of constant pointers with each pointer pointing to a different input image plane.

4.2.2.1.4 Source-Image Line Step

The source image line step is the number of bytes between successive rows in the image. The source image line step parameter is

```
nSrcStep
```

or in the case of multiple source images

```
nSrcStep1, nSrcStep2, ...
```

4.2.2.1.5 Source-Planar-Image Line Step Array

The source planar image line step array is an array where each element of the array contains the number of bytes between successive rows for a particular plane in the input image. The source planar image line step array parameter is

```
rSrcStep []
```

4.2.2.1.6 Source-Planar-Image Line Step

The source planar image line step is the number of bytes between successive rows in a particular plane of the multiplane input image. The source planar image line step parameter is

```
nSrcStep1, nSrcStep2, ...
```

4.2.2.2 Passing Destination-Image Data

Those are images produced by the algorithm.

4.2.2.2.1 Destination-Image Pointer

The destination image data is generally passed via a pointer named

`pDst`

In case the primitive generates multiple images as outputs the destination pointers are numbered like this:

`pDst1, pDst2, ...`

4.2.2.2.2 Destination-Planar-Image Pointer Array

The planar destination image data pointers are generally passed via an array of pointers named

`pDst[]`

Each pointer in the array points to a different image plane.

4.2.2.2.3 Destination-Planar-Image Pointer

The destination planar image data is generally passed via a pointer to each plane of a multiplane output image named

`pDst1, pDst2, ...`

4.2.2.2.4 Destination-Image Line Step

The destination image line step parameter is

`nDstStep`

or in the case of multiple destination images

`nDstStep1, nDstStep2, ...`

4.2.2.2.5 Destination-Planar-Image Line Step Array

The destination planar image line step array is an array where each element of the array contains the number of bytes between successive rows for a particular plane in the output image. The destination planar image line step array parameter is

`rDstStep[]`

4.2.2.2.6 Destination-Planar-Image Line Step

The destination planar image line step is the number of bytes between successive rows for a particular plane in a multiplane output image. The destination planar image line step parameter is

`nDstStep1, nDstStep2, ...`

4.2.2.3 Passing In-Place Image Data

4.2.2.3.1 In-Place Image Pointer

In the case of in-place processing, source and destination are served by the same pointer and thus pointers to in-place image data are called:

`pSrcDst`

4.2.2.3.2 In-Place-Image Line Step

The in-place line step parameter is

`nSrcDstStep`

4.2.2.4 Passing Mask-Image Data

Some image processing primitives have variants supporting [Masked Operation](#).

4.2.2.4.1 Mask-Image Pointer

The mask-image data is generally passed via a pointer named

`pMask`

4.2.2.4.2 Mask-Image Line Step

The mask-image line step parameter is

`nMaskStep`

4.2.2.5 Passing Channel-of-Interest Data

Some image processing primitives support [Channel-of-Interest API](#).

4.2.2.5.1 Channel_of_Interest Number

The channel-of-interest data is generally an integer (either 1, 2, or 3):

`nCOI`

4.2.3 Image Data Alignment Requirements

NPP requires pixel data to adhere to certain alignment constraints: For 2 and 4 channel images the following alignment requirement holds: `data_pointer % (#channels * sizeof(channel type)) == 0`. E.g. a 4 channel image with underlying type [Npp8u](#) (8-bit unsigned) would require all pixels to fall on addresses that are multiples of 4 (4 channels * 1 byte size).

As a logical consequence of all pixels being aligned to their natural size the image line steps of 2 and 4 channel images also need to be multiples of the pixel size.

1 and 3 channel images only require that pixel pointers are aligned to the underlying data type, i.e. `pData % sizeof(data type) == 0`. And consequentially line steps are also held to this requirement.

4.2.4 Image Data Related Error Codes

All NPPI primitives operating on image data validate the image-data pointer for proper alignment and test that the point is not null. They also validate the line stride for proper alignment and guard against the step being less or equal to 0. Failed validation results in one of the following error codes being returned and the primitive not being executed:

- **NPP_STEP_ERROR** is returned if the data step is 0 or negative.
- **NPP_NOT EVEN STEP ERROR** is returned if the line step is not a multiple of the pixel size for 2 and 4 channel images.
- **NPP_NULL_POINTER_ERROR** is returned if the image-data pointer is 0 (NULL).
- **NPP_ALIGNMENT_ERROR** if the image-data pointer address is not a multiple of the pixel size for 2 and 4 channel images.

4.3 Region-of-Interest (ROI)

In practice processing a rectangular sub-region of an image is often more common than processing complete images. The vast majority of NPP's image-processing primitives allow for processing of such sub-regions also referred to as regions-of-interest or ROIs.

All primitives supporting ROI processing are marked by a "R" in their name suffix. Where possible, the ROI primitive operates on is passed as a single **NppiSize** struct, which provides the width and height of the ROI. This raises the obvious question how the primitive knows where in the image this rectangle of (width, height) is located. The "start pixel" of the ROI is implicitly given by the image-data pointer. I.e. instead of explicitly passing a pixel coordinate for the upper-right corner of the ROI the primitive's user needs to perform the necessary offset computation on the image data pointers, such that the pointers passed to the primitive thus point to the start of the ROI.

In practice this means that for an image (`pSrc`, `nSrcStep`) and the start-pixel of the ROI being given by (`xROI`, `yROI`), one would pass

`pSrcOffset = pSrc + yROI * nSrcStep + xROI * PixelSize;`

as the image-data source to the primitive. `PixelSize` is typically computed as

`PixelSize = NumberofColorChannels * sizeof(PixelDataType).`

E.g. for a primitive like **nppiSet_16s_C4R()** we would have

- `NumberofColorChannels == 4;`
- `sizeof(Npp16s) == 2;`
- and thus `PixelSize = 4 * 2 = 8;`

4.3.1 ROI Related Error Codes

All NPPI primitives operating on ROIs of image data validate the ROI size and image's step size. Failed validation results in one of the following error codes being returned and the primitive not being executed:

- **NPP_SIZE_ERROR** is returned if either the ROI width or ROI height are negative.
- **NPP_STEP_ERROR** is returned if the ROI width exceeds the image's line step. In mathematical terms ($\text{widthROI} * \text{PixelSize}$) > $nLinStep$ indicates an error.

4.4 Masked Operation

Some primitive support masked operation. An "M" in the suffix of those variants indicates masked operation. Primitives supporting masked operation consume an additional input image provided via a [Mask-Image Pointer](#) and [Mask-Image Line Step](#). The mask image is interpreted by these primitives as a boolean image. The values of type Npp8u are interpreted as boolean values where a values of 0 indicates false, any non-zero values true.

Unless otherwise indicated the operation is only performed on pixels where its spatially corresponding mask pixel is true (non-zero). E.g. a masked copy operation would only copy those pixels in the ROI that have corresponding non-zero mask pixels.

4.5 Channel-of-Interest API

Some primitives allow restricting operations to a single channel of interest within a multi-channel image. These primitives are suffixed with the letter "C" (after the channel information, e.g. `nppiCopy_8u_C3CR(...)`). The channel-of-interest is generally selected by offsetting the image-data pointer to point directly to the channel-of-interest rather than the base of the first pixel in the ROI. Some primitives also explicitly specify the selected channel number and pass it via an integer, e.g. `nppiMean_StdDev_8u_C3CR(...)`.

4.5.1 Select-Channel Source-Image Pointer

This is a pointer to the channel-of-interest within the first pixel of the source image. E.g. if `pSrc` is the pointer to the first pixel inside the ROI of a three channel image. Using the appropriate select-channel copy primitive one could copy the second channel of this source image into the first channel of a destination image given by `pDst` by offsetting the pointer by two data items:

```
nppiCopy_8u_C3CR(pSrc + 2, nSrcStep, pDst, nDstStep, oSizeROI);
```

4.5.2 Select-Channel Source-Image

Some primitives allow the user to select the channel-of-interest by specifying the channel number (`nCOI`). This approach is typically used in the image statistical functions. For example,

```
nppiMean_StdDev_8u_C3CR(pSrc, nSrcStep, oSizeROI, nCOI, pDeviceBuffer, pMean, pStdDev );
```

The channel-of-interest number can be either 1, 2, or 3.

4.5.3 Select-Channel Destination-Image Pointer

This is a pointer to the channel-of-interest within the first pixel of the destination image. E.g. if pDst is the pointer to the first pixel inside the ROI of a three channel image. Using the appropriate select-channel copy primitive one could copy data into the second channel of this destination image from the first channel of a source image given by pSrc by offsetting the destination pointer by two data items:

```
nppiCopy_8u_C3CR(pSrc, nSrcStep, pDst + 2, nDstStep, oSizeROI);
```


Chapter 5

Module Index

5.1 Modules

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Npp32sc (Complex Number This struct represents a signed int complex number)	1548
Npp32uc (Complex Number This struct represents an unsigned int complex number)	1549
Npp64fc (Complex Number This struct represents a double floating-point complex number) . . .	1550
Npp64sc (Complex Number This struct represents a long long complex number)	1551
Npp8uc (Complex Number This struct represents an unsigned char complex number)	1552
NppiHaarBuffer	1553
NppiHaarClassifier_32f	1554
NppiPoint (2D Point)	1555
NppiRect (2D Rectangle This struct contains position and size information of a rectangle in two space)	1556
NppiSize (2D Size This struct typically represents the size of a a rectangular region in two space) .	1557
NppLibraryVersion	1558

Chapter 7

Module Documentation

7.1 NPP Core

Basic functions for library management, in particular library version and device property query functions.

Functions

- `const NppLibraryVersion * nppGetLibVersion (void)`
Get the NPP library version.
- `NppGpuComputeCapability nppGetGpuComputeCapability (void)`
What CUDA compute model is supported by the active CUDA device?
- `int nppGetGpuNumSMs (void)`
Get the number of Streaming Multiprocessors (SM) on the active CUDA device.
- `int nppGetMaxThreadsPerBlock (void)`
Get the maximum number of threads per block on the active CUDA device.
- `int nppGetMaxThreadsPerSM (void)`
Get the maximum number of threads per SM for the active GPU.
- `const char * nppGetGpuName (void)`
Get the name of the active CUDA device.
- `cudaStream_t nppGetStream (void)`
Get the NPP CUDA stream.
- `void nppSetStream (cudaStream_t hStream)`
Set the NPP CUDA stream.

7.1.1 Detailed Description

Basic functions for library management, in particular library version and device property query functions.

7.1.2 Function Documentation

7.1.2.1 NppGpuComputeCapability nppGetGpuComputeCapability (void)

What CUDA compute model is supported by the active CUDA device?

Before trying to call any NPP functions, the user should make a call this function to ensure that the current machine has a CUDA capable device.

Returns:

An enum value representing if a CUDA capable device was found and what level of compute capabilities it supports.

7.1.2.2 const char* nppGetGpuName (void)

Get the name of the active CUDA device.

Returns:

Name string of the active graphics-card/compute device in a system.

7.1.2.3 int nppGetGpuNumSMs (void)

Get the number of Streaming Multiprocessors (SM) on the active CUDA device.

Returns:

Number of SMs of the default CUDA device.

7.1.2.4 const NppLibraryVersion* nppGetLibVersion (void)

Get the NPP library version.

Returns:

A struct containing separate values for major and minor revision and build number.

7.1.2.5 int nppGetMaxThreadsPerBlock (void)

Get the maximum number of threads per block on the active CUDA device.

Returns:

Maximum number of threads per block on the active CUDA device.

7.1.2.6 int nppGetMaxThreadsPerSM (void)

Get the maximum number of threads per SM for the active GPU.

Returns:

Maximum number of threads per SM for the active GPU

7.1.2.7 cudaStream_t nppGetStream (void)

Get the NPP CUDA stream.

NPP enables concurrent device tasks via a global stream state variable. The NPP stream by default is set to stream 0, i.e. non-concurrent mode. A user can set the NPP stream to any valid CUDA stream. All CUDA commands issued by NPP (e.g. kernels launched by the NPP library) are then issued to that NPP stream.

7.1.2.8 void nppSetStream (cudaStream_t *hStream*)

Set the NPP CUDA stream.

See also:

[nppGetStream\(\)](#)

7.2 NPP Type Definitions and Constants

Data Structures

- struct [NppLibraryVersion](#)
- struct [NppiPoint](#)

2D Point

- struct [NppiSize](#)

2D Size This struct typically represents the size of a rectangular region in two space.

- struct [NppiRect](#)

2D Rectangle This struct contains position and size information of a rectangle in two space.

- struct [NppiHaarClassifier_32f](#)
- struct [NppiHaarBuffer](#)

Modules

- [Basic NPP Data Types](#)

Defines

- #define [NPP_MIN_8U](#) (0)

Minimum 8-bit unsigned integer.

- #define [NPP_MAX_8U](#) (255)

Maximum 8-bit unsigned integer.

- #define [NPP_MIN_16U](#) (0)

Minimum 16-bit unsigned integer.

- #define [NPP_MAX_16U](#) (65535)

Maximum 16-bit unsigned integer.

- #define [NPP_MIN_32U](#) (0)

Minimum 32-bit unsigned integer.

- #define [NPP_MAX_32U](#) (4294967295U)

Maximum 32-bit unsigned integer.

- #define [NPP_MIN_64U](#) (0)

Minimum 64-bit unsigned integer.

- #define [NPP_MAX_64U](#) (18446744073709551615ULL)

Maximum 64-bit unsigned integer.

- #define [NPP_MIN_8S](#) (-127 - 1)

Minimum 8-bit signed integer.

- #define **NPP_MAX_8S** (127)
Maximum 8-bit signed integer.
- #define **NPP_MIN_16S** (-32767 - 1)
Minimum 16-bit signed integer.
- #define **NPP_MAX_16S** (32767)
Maximum 16-bit signed integer.
- #define **NPP_MIN_32S** (-2147483647 - 1)
Minimum 32-bit signed integer.
- #define **NPP_MAX_32S** (2147483647)
Maximum 32-bit signed integer.
- #define **NPP_MAX_64S** (9223372036854775807LL)
Maximum 64-bit signed integer.
- #define **NPP_MIN_64S** (-9223372036854775807LL - 1)
Minimum 64-bit signed integer.
- #define **NPP_MINABS_32F** (1.175494351e-38f)
Smallest positive 32-bit floating point value.
- #define **NPP_MAXABS_32F** (3.402823466e+38f)
Largest positive 32-bit floating point value.
- #define **NPP_MINABS_64F** (2.2250738585072014e-308)
Smallest positive 64-bit floating point value.
- #define **NPP_MAXABS_64F** (1.7976931348623158e+308)
Largest positive 64-bit floating point value.

Enumerations

- enum **NppiInterpolationMode** {
 NPPI_INTER_UNDEFINED = 0,
 NPPI_INTER_NN = 1,
 NPPI_INTER_LINEAR = 2,
 NPPI_INTER_CUBIC = 4,
 NPPI_INTER_CUBIC2P_BSPLINE,
 NPPI_INTER_CUBIC2P_CATMULLROM,
 NPPI_INTER_CUBIC2P_B05C03,
 NPPI_INTER_SUPER = 8,
 NPPI_INTER_LANCZOS = 16,
 NPPI_SMOOTH_EDGE = (1 << 31) }

Filtering methods.

- enum NppStatus {
 NPP_NOT_SUPPORTED_MODE_ERROR = -9999,
 NPP_ROUND_MODE_NOT_SUPPORTED_ERROR = -213,
 NPP_RESIZE_NO_OPERATION_ERROR = -50,
 NPP_COI_ERROR = -29,
 NPP_ZC_MODE_NOT_SUPPORTED_ERROR = -28,
 NPP_NOT_SUFFICIENT_COMPUTE_CAPABILITY = -27,
 NPP_BAD_ARG_ERROR = -26,
 NPP_LUT_NUMBER_OF_LEVELS_ERROR = -25,
 NPP_TEXTURE_BIND_ERROR = -24,
 NPP_COEFF_ERROR = -23,
 NPP_RECT_ERROR = -22,
 NPP_QUAD_ERROR = -21,
 NPP_WRONG_INTERSECTION_ROI_ERROR = -20,
 NPP_NOT EVEN STEP ERROR = -19,
 NPP_INTERPOLATION_ERROR = -18,
 NPP_RESIZE_FACTOR_ERROR = -17,
 NPP_HAAR_CLASSIFIER_PIXEL_MATCH_ERROR = -16,
 NPP_MEMFREE_ERR = -15,
 NPP_MEMSET_ERR = -14,
 NPP_MEMCPY_ERROR = -13,
 NPP_MEM_ALLOC_ERR = -12,
 NPP_HISTO_NUMBER_OF_LEVELS_ERROR = -11,
 NPP_MIRROR_FLIP_ERR = -10,
 NPP_INVALID_INPUT = -9,
 NPP_ALIGNMENT_ERROR = -8,
 NPP_STEP_ERROR = -7,
 NPP_SIZE_ERROR = -6,
 NPP_POINTER_ERROR = -5,
 NPP_NULL_POINTER_ERROR = -4,
 NPP_CUDA_KERNEL_EXECUTION_ERROR = -3,
 NPP_NOT_IMPLEMENTED_ERROR = -2,
 NPP_ERROR = -1,
 NPP_NO_ERROR = 0,
 NPP_SUCCESS = NPP_NO_ERROR,
 NPP_WARNING = 1,
 NPP_WRONG_INTERSECTION_QUAD_WARNING = 2,
 NPP_MISALIGNED_DST_ROI_WARNING = 3,
 NPP_AFFINE_QUAD_INCORRECT_WARNING = 4,
}

```
NPP_DOUBLE_SIZE_WARNING = 5,  
NPP_ODD_ROI_WARNING = 6,  
NPP_WRONG_INTERSECTION_ROI_WARNING = 29 }
```

Error Status Codes.

- enum `NppGpuComputeCapability` {
 `NPP_CUDA_UNKNOWN_VERSION` = -1,
 `NPP_CUDA_NOT_CAPABLE`,
 `NPP_CUDA_1_0`,
 `NPP_CUDA_1_1`,
 `NPP_CUDA_1_2`,
 `NPP_CUDA_1_3`,
 `NPP_CUDA_2_0`,
 `NPP_CUDA_2_1`,
 `NPP_CUDA_3_0` }
- enum `NppiAxis` {
 `NPP_HORIZONTAL_AXIS`,
 `NPP_VERTICAL_AXIS`,
 `NPP_BOTH_AXIS` }
- enum `NppCmpOp` {
 `NPP_CMP_LESS`,
 `NPP_CMP_LESS_EQ`,
 `NPP_CMP_EQ`,
 `NPP_CMP_GREATER_EQ`,
 `NPP_CMP_GREATER` }
- enum `NppRoundMode` {
 `NPP_RND_ZERO`,
 `NPP_RND_NEAR`,
 `NPP_RND_FINANCIAL` }
- enum `NppiBorderType` {
 `NPP_BORDER_UNDEFINED` = -1,
 `NPP_BORDER_NONE` = `NPP_BORDER_UNDEFINED`,
 `NPP_BORDER_CONSTANT` = 0,
 `NPP_BORDER_REPLICATE` = 1,
 `NPP_BORDER_WRAP` = 2 }
- enum `NppiAlphaOp` {
 `NPPI_OP_ALPHA_OVER`,
 `NPPI_OP_ALPHA_IN`,
 `NPPI_OP_ALPHA_OUT`,
 `NPPI_OP_ALPHA_ATOP`,
 `NPPI_OP_ALPHA_XOR`,
 `NPPI_OP_ALPHA_PLUS`,

```
NPPI_OP_ALPHA_OVER_PREMUL,  
NPPI_OP_ALPHA_IN_PREMUL,  
NPPI_OP_ALPHA_OUT_PREMUL,  
NPPI_OP_ALPHA_ATOP_PREMUL,  
NPPI_OP_ALPHA_XOR_PREMUL,  
NPPI_OP_ALPHA_PLUS_PREMUL,  
NPPI_OP_ALPHA_PREMUL }  
• enum NppsZCType {  
    nppZCR,  
    nppZCXor,  
    nppZCC }
```

7.2.1 Define Documentation

7.2.1.1 #define NPP_MAX_16S (32767)

Maximum 16-bit signed integer.

7.2.1.2 #define NPP_MAX_16U (65535)

Maximum 16-bit unsigned integer.

7.2.1.3 #define NPP_MAX_32S (2147483647)

Maximum 32-bit signed integer.

7.2.1.4 #define NPP_MAX_32U (4294967295U)

Maximum 32-bit unsigned integer.

7.2.1.5 #define NPP_MAX_64S (9223372036854775807LL)

Maximum 64-bit signed integer.

7.2.1.6 #define NPP_MAX_64U (18446744073709551615ULL)

Maximum 64-bit unsigned integer.

7.2.1.7 #define NPP_MAX_8S (127)

Maximum 8-bit signed integer.

7.2.1.8 #define NPP_MAX_8U (255)

Maximum 8-bit unsigned integer.

7.2.1.9 #define NPP_MAXABS_32F (3.402823466e+38f)

Largest positive 32-bit floating point value.

7.2.1.10 #define NPP_MAXABS_64F (1.7976931348623158e+308)

Largest positive 64-bit floating point value.

7.2.1.11 #define NPP_MIN_16S (-32767 - 1)

Minimum 16-bit signed integer.

7.2.1.12 #define NPP_MIN_16U (0)

Minimum 16-bit unsigned integer.

7.2.1.13 #define NPP_MIN_32S (-2147483647 - 1)

Minimum 32-bit signed integer.

7.2.1.14 #define NPP_MIN_32U (0)

Minimum 32-bit unsigned integer.

7.2.1.15 #define NPP_MIN_64S (-9223372036854775807LL - 1)

Minimum 64-bit signed integer.

7.2.1.16 #define NPP_MIN_64U (0)

Minimum 64-bit unsigned integer.

7.2.1.17 #define NPP_MIN_8S (-127 - 1)

Minimum 8-bit signed integer.

7.2.1.18 #define NPP_MIN_8U (0)

Minimum 8-bit unsigned integer.

7.2.1.19 #define NPP_MINABS_32F (1.175494351e-38f)

Smallest positive 32-bit floating point value.

7.2.1.20 #define NPP_MINABS_64F (2.2250738585072014e-308)

Smallest positive 64-bit floating point value.

7.2.2 Enumeration Type Documentation

7.2.2.1 enum NppCmpOp

Enumerator:

NPP_CMP_LESS
NPP_CMP_LESS_EQ
NPP_CMP_EQ
NPP_CMP_GREATER_EQ
NPP_CMP_GREATER

7.2.2.2 enum NppGpuComputeCapability

Enumerator:

NPP_CUDA_UNKNOWN_VERSION Indicates that the compute-capability query failed.
NPP_CUDA_NOT_CAPABLE Indicates that no CUDA capable device was found.
NPP_CUDA_1_0 Indicates that CUDA 1.0 capable device is machine's default device.
NPP_CUDA_1_1 Indicates that CUDA 1.1 capable device is machine's default device.
NPP_CUDA_1_2 Indicates that CUDA 1.2 capable device is machine's default device.
NPP_CUDA_1_3 Indicates that CUDA 1.3 capable device is machine's default device.
NPP_CUDA_2_0 Indicates that CUDA 2.0 capable device is machine's default device.
NPP_CUDA_2_1 Indicates that CUDA 2.1 capable device is machine's default device.
NPP_CUDA_3_0 Indicates that CUDA 3.0 or better is machine's default device.

7.2.2.3 enum NppiAlphaOp

Enumerator:

NPPI_OP_ALPHA_OVER
NPPI_OP_ALPHA_IN
NPPI_OP_ALPHA_OUT
NPPI_OP_ALPHA_ATOP
NPPI_OP_ALPHA_XOR
NPPI_OP_ALPHA_PLUS
NPPI_OP_ALPHA_OVER_PREMUL
NPPI_OP_ALPHA_IN_PREMUL
NPPI_OP_ALPHA_OUT_PREMUL
NPPI_OP_ALPHA_ATOP_PREMUL
NPPI_OP_ALPHA_XOR_PREMUL
NPPI_OP_ALPHA_PLUS_PREMUL
NPPI_OP_ALPHA_PREMUL

7.2.2.4 enum NppiAxis

Enumerator:

NPP_HORIZONTAL_AXIS
NPP_VERTICAL_AXIS
NPP_BOTH_AXIS

7.2.2.5 enum NppiBorderType

Enumerator:

NPP_BORDER_UNDEFINED
NPP_BORDER_NONE
NPP_BORDER_CONSTANT
NPP_BORDER_REPLICATE
NPP_BORDER_WRAP

7.2.2.6 enum NppiInterpolationMode

Filtering methods.

Enumerator:

NPPI_INTER_UNDEFINED
NPPI_INTER_NN Nearest neighbor filtering.
NPPI_INTER_LINEAR Linear interpolation.
NPPI_INTER_CUBIC Cubic interpolation.
NPPI_INTER_CUBIC2P_BSPLINE Two-parameter cubic filter (B=1, C=0).
NPPI_INTER_CUBIC2P_CATMULLROM Two-parameter cubic filter (B=0, C=1/2).
NPPI_INTER_CUBIC2P_B05C03 Two-parameter cubic filter (B=1/2, C=3/10).
NPPI_INTER_SUPER Super sampling.
NPPI_INTER_LANCZOS Lanczos filtering.
NPPI_SMOOTH_EDGE Smooth edge filtering.

7.2.2.7 enum NppRoundMode

Enumerator:

NPP_RND_ZERO
NPP_RND_NEAR
NPP_RND_FINANCIAL

7.2.2.8 enum NppStatus

Error Status Codes.

Almost all NPP function return error-status information using these return codes. Negative return codes indicate errors, positive return codes indicate warnings, a return code of 0 indicates success.

Enumerator:

NPP_NOT_SUPPORTED_MODE_ERROR
NPP_ROUND_MODE_NOT_SUPPORTED_ERROR
NPP_RESIZE_NO_OPERATION_ERROR
NPP_COI_ERROR Channel of interest is not 1, 2, or 3.
NPP_ZC_MODE_NOT_SUPPORTED_ERROR ZeroCrossing mode not supported.
NPP_NOT_SUFFICIENT_COMPUTE_CAPABILITY
NPP_BAD_ARG_ERROR
NPP_LUT_NUMBER_OF_LEVELS_ERROR
NPP_TEXTURE_BIND_ERROR
NPP_COEFF_ERROR
NPP_RECT_ERROR
NPP_QUAD_ERROR
NPP_WRONG_INTERSECTION_ROI_ERROR
NPP_NOT EVEN STEP ERROR
NPP_INTERPOLATION_ERROR
NPP_RESIZE_FACTOR_ERROR
NPP_HAAR_CLASSIFIER_PIXEL_MATCH_ERROR
NPP_MEMFREE_ERR
NPP_MEMSET_ERR
NPP_MEMCPY_ERROR
NPP_MEM_ALLOC_ERR
NPP_HISTO_NUMBER_OF_LEVELS_ERROR
NPP_MIRROR_FLIP_ERR
NPP_INVALID_INPUT
NPP_ALIGNMENT_ERROR
NPP_STEP_ERROR Step is less or equal zero.
NPP_SIZE_ERROR
NPP_POINTER_ERROR
NPP_NULL_POINTER_ERROR
NPP_CUDA_KERNEL_EXECUTION_ERROR
NPP_NOT_IMPLEMENTED_ERROR
NPP_ERROR
NPP_NO_ERROR Error free operation.
NPP_SUCCESS Successful operation (same as NPP_NO_ERROR).
NPP_WARNING

NPP_WRONG_INTERSECTION_QUAD_WARNING

NPP_MISALIGNED_DST_ROI_WARNING Speed reduction due to uncoalesced memory accesses warning.

NPP_AFFINE_QUAD_INCORRECT_WARNING Indicates that the quadrangle passed to one of affine warping functions doesn't have necessary properties. First 3 vertices are used, the fourth vertex discarded.

NPP_DOUBLE_SIZE_WARNING Indicates that in case of 422/411/420 sampling the ROI width/height was modified for proper processing.

NPP_ODD_ROI_WARNING Indicates that for 422/411/420 sampling the ROI width/height was forced to even value.

NPP_WRONG_INTERSECTION_ROI_WARNING ROI doesn't intersect source or destination ROI/image. No operation performed.

7.2.2.9 enum NppsZCType

Enumerator:

nppZCR sign change

nppZCXor sign change XOR

nppZCC sign change count_0

7.3 Basic NPP Data Types

Data Structures

- struct [Npp8uc](#)

Complex Number This struct represents an unsigned char complex number.

- struct [Npp16uc](#)

Complex Number This struct represents an unsigned short complex number.

- struct [Npp16sc](#)

Complex Number This struct represents a short complex number.

- struct [Npp32uc](#)

Complex Number This struct represents an unsigned int complex number.

- struct [Npp32sc](#)

Complex Number This struct represents a signed int complex number.

- struct [Npp32fc](#)

Complex Number This struct represents a single floating-point complex number.

- struct [Npp64sc](#)

Complex Number This struct represents a long long complex number.

- struct [Npp64fc](#)

Complex Number This struct represents a double floating-point complex number.

Typedefs

- typedef unsigned char [Npp8u](#)

8-bit unsigned chars

- typedef signed char [Npp8s](#)

8-bit signed chars

- typedef unsigned short [Npp16u](#)

16-bit unsigned integers

- typedef short [Npp16s](#)

16-bit signed integers

- typedef unsigned int [Npp32u](#)

32-bit unsigned integers

- typedef int [Npp32s](#)

32-bit signed integers

- **typedef unsigned long long Npp64u**
64-bit unsigned integers
- **typedef long long Npp64s**
64-bit signed integers
- **typedef float Npp32f**
32-bit (IEEE) floating-point numbers
- **typedef double Npp64f**
64-bit floating-point numbers

7.3.1 Typedef Documentation

7.3.1.1 **typedef short Npp16s**

16-bit signed integers

7.3.1.2 **typedef unsigned short Npp16u**

16-bit unsigned integers

7.3.1.3 **typedef float Npp32f**

32-bit (IEEE) floating-point numbers

7.3.1.4 **typedef int Npp32s**

32-bit signed integers

7.3.1.5 **typedef unsigned int Npp32u**

32-bit unsigned integers

7.3.1.6 **typedef double Npp64f**

64-bit floating-point numbers

7.3.1.7 **typedef long long Npp64s**

64-bit signed integers

7.3.1.8 **typedef unsigned long long Npp64u**

64-bit unsigned integers

7.3.1.9 **typedef signed char Npp8s**

8-bit signed chars

7.3.1.10 **typedef unsigned char Npp8u**

8-bit unsigned chars

7.4 NPP Image Processing

Modules

- [Arithmetic and Logical Operations](#)
- [Color and Sampling Conversion](#)

Routines manipulating an image's color model and sampling format.

- [Compression](#)

Image compression primitives.

- [Labeling and Segmentation](#)

Pixel labeling and image segmentation operations.

- [Data Exchange and Initialization](#)

Primitives for initialization, copying and converting image data.

- [Filtering Functions](#)

Linear and non-linear image filtering functions.

- [Geometry Transforms](#)

Routines manipulating an image's geometry.

- [Linear Transforms](#)

Linear image transformations.

- [Morphological Operations](#)

Morphological image operations.

- [Statistics Functions](#)

Routines computing statistical image information.

- [Memory Management](#)

Routines for allocating and deallocating pitched image storage.

- [Threshold and Compare Operations](#)

Methods for pixel-wise threshold and compare operations.

7.5 Arithmetic and Logical Operations

Modules

- [Arithmetic Operations](#)
- [Logical Operations](#)
- [Alpha Composition](#)

7.6 Arithmetic Operations

Modules

- [AddC](#)

Adds a constant value to each pixel of an image.

- [MulC](#)

Multiplies each pixel of an image by a constant value.

- [MulCScale](#)

Multiplies each pixel of an image by a constant value then scales the result by the maximum value for the data bit width.

- [SubC](#)

Subtracts a constant value from each pixel of an image.

- [DivC](#)

Divides each pixel of an image by a constant value.

- [AbsDiffC](#)

Determines absolute difference between each pixel of an image and a constant value.

- [Add](#)

Pixel by pixel addition of two images.

- [AddSquare](#)

Pixel by pixel addition of squared pixels from source image to floating point pixel values of destination image.

- [AddProduct](#)

Pixel by pixel addition of product of pixels from two source images to floating point pixel values of destination image.

- [AddWeighted](#)

Pixel by pixel addition of alpha weighted pixel values from a source image to floating point pixel values of destination image.

- [Mul](#)

Pixel by pixel multiply of two images.

- [MulScale](#)

Pixel by pixel multiplies each pixel of two images then scales the result by the maximum value for the data bit width.

- [Sub](#)

Pixel by pixel subtraction of two images.

- [Div](#)

Pixel by pixel division of two images.

- [Div_Round](#)

Pixel by pixel division of two images using result rounding modes.

- [Abs](#)

Absolute value of each pixel value in an image.

- [AbsDiff](#)

Pixel by pixel absolute difference between two images.

- [Sqr](#)

Square each pixel in an image.

- [Sqrt](#)

Pixel by pixel square root of each pixel in an image.

- [Ln](#)

Pixel by pixel natural logarithm of each pixel in an image.

- [Exp](#)

Exponential value of each pixel in an image.

7.7 AddC

Adds a constant value to each pixel of an image.

Functions

- `NppStatus nppiAddC_8u_C1RSfs` (const `Npp8u` *`pSrc1`, int `nSrc1Step`, const `Npp8u` `nConstant`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C1IRSfs` (const `Npp8u` `nConstant`, `Npp8u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 8-bit unsigned char channel in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C3RSfs` (const `Npp8u` *`pSrc1`, int `nSrc1Step`, const `Npp8u` `aConstants[3]`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Three 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C3IRSfs` (const `Npp8u` `aConstants[3]`, `Npp8u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Three 8-bit unsigned char channel 8-bit unsigned char in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_AC4RSfs` (const `Npp8u` *`pSrc1`, int `nSrc1Step`, const `Npp8u` `aConstants[3]`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 8-bit unsigned char channel with unmodified alpha image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_AC4IRSfs` (const `Npp8u` `aConstants[3]`, `Npp8u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 8-bit unsigned char channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C4RSfs` (const `Npp8u` *`pSrc1`, int `nSrc1Step`, const `Npp8u` `aConstants[4]`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_8u_C4IRSfs` (const `Npp8u` `aConstants[4]`, `Npp8u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
Four 8-bit unsigned char channel in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_16u_C1RSfs` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp16u` `nConstant`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_16u_C1IRSfs` (const `Npp16u` `nConstant`, `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)
One 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.
- `NppStatus nppiAddC_16u_C3RSfs` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp16u` `aConstants[3]`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, int `nScaleFactor`)

Three 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_C3IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_AC4IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16u_C4IRSfs** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C1IRSfs** (const **Npp16s** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C3IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_AC4IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[4], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16s_C4IRSfs** (const **Npp16s** aConstants[4], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** nConstant, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_C1IRSfs** (const **Npp16sc** nConstant, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** aConstants[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_C3IRSfs** (const **Npp16sc** aConstants[3], **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** aConstants[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_16sc_AC4IRSfs** (const **Npp16sc** aConstants[3], **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** nConstant, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32s_C1IRSfs** (const **Npp32s** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32s_C3IRSfs** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel in place image add constant, scale, then clamp to saturated value.

- **NppStatus nppiAddC_32sc_C1RSfs** (const [Npp32sc](#) *pSrc1, int nSrc1Step, const [Npp32sc](#) nConstant, [Npp32sc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_C1IRSfs** (const [Npp32sc](#) nConstant, [Npp32sc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_C3RSfs** (const [Npp32sc](#) *pSrc1, int nSrc1Step, const [Npp32sc](#) aConstants[3], [Npp32sc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_C3IRSfs** (const [Npp32sc](#) aConstants[3], [Npp32sc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_AC4RSfs** (const [Npp32sc](#) *pSrc1, int nSrc1Step, const [Npp32sc](#) aConstants[3], [Npp32sc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32sc_AC4IRSfs** (const [Npp32sc](#) aConstants[3], [Npp32sc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.
- **NppStatus nppiAddC_32f_C1R** (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) nConstant, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel image add constant.
- **NppStatus nppiAddC_32f_C1IR** (const [Npp32f](#) nConstant, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel in place image add constant.
- **NppStatus nppiAddC_32f_C3R** (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) aConstants[3], [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three 32-bit floating point channel image add constant.
- **NppStatus nppiAddC_32f_C3IR** (const [Npp32f](#) aConstants[3], [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Three 32-bit floating point channel in place image add constant.
- **NppStatus nppiAddC_32f_AC4R** (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) aConstants[3], [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel with unmodified alpha image add constant.
- **NppStatus nppiAddC_32f_AC4IR** (const [Npp32f](#) aConstants[3], [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image add constant.

Four 32-bit floating point channel with unmodified alpha in place image add constant.

- **NppStatus nppiAddC_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[4], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image add constant.

- **NppStatus nppiAddC_32f_C4IR** (const **Npp32f** aConstants[4], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image add constant.

- **NppStatus nppiAddC_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** nConstant, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

- **NppStatus nppiAddC_32fc_C1IR** (const **Npp32fc** nConstant, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

- **NppStatus nppiAddC_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

- **NppStatus nppiAddC_32fc_C3IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

- **NppStatus nppiAddC_32fc_AC4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image add constant.

- **NppStatus nppiAddC_32fc_AC4IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image add constant.

- **NppStatus nppiAddC_32fc_C4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[4], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

- **NppStatus nppiAddC_32fc_C4IR** (const **Npp32fc** aConstants[4], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

7.7.1 Detailed Description

Adds a constant value to each pixel of an image.

7.7.2 Function Documentation

7.7.2.1 NppStatus nppiAddC_16s_AC4IRSfs (const Npp16s *aConstants*[3], Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.2 NppStatus nppiAddC_16s_AC4RSfs (const Npp16s **pSrc1*, int *nSrc1Step*, const Npp16s *aConstants*[3], Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.3 NppStatus nppiAddC_16s_C1IRSfs (const Npp16s *nConstant*, Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.4 NppStatus nppiAddC_16s_C1RSfs (const Npp16s * pSrcI, int nSrcIStep, const Npp16s nConstant, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.5 NppStatus nppiAddC_16s_C3IRSfs (const Npp16s aConstants[3], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.6 NppStatus nppiAddC_16s_C3RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s * *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image add constant, scale, then clamp to saturated value.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.7 NppStatus nppiAddC_16s_C4IRSfs (const Npp16s *aConstants*[4], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.8 NppStatus nppiAddC_16s_C4RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s * *aConstants*[4], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image add constant, scale, then clamp to saturated value.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.9 NppStatus nppiAddC_16sc_AC4IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.10 NppStatus nppiAddC_16sc_AC4RSfs (const Npp16sc * *pSrcI*, int *nSrcIStep*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.11 NppStatus nppiAddC_16sc_C1IRSfs (const Npp16sc *nConstant*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

Parameters:

- nConstant* Constant.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.12 NppStatus nppiAddC_16sc_C1RSFs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *nConstant*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image add constant, scale, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nConstant* Constant.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.13 NppStatus nppiAddC_16sc_C3IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.14 NppStatus nppiAddC_16sc_C3RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.15 NppStatus nppiAddC_16u_AC4IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.16 NppStatus nppiAddC_16u_AC4RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.17 NppStatus nppiAddC_16u_C1IRSfs (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.18 NppStatus nppiAddC_16u_C1RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *nConstant*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.19 NppStatus nppiAddC_16u_C3IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.20 NppStatus nppiAddC_16u_C3RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.21 NppStatus nppiAddC_16u_C4IRSfs (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image add constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.22 NppStatus nppiAddC_16u_C4RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image add constant, scale, then clamp to saturated value.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.23 NppStatus nppiAddC_32f_AC4IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image add constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.24 NppStatus nppiAddC_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[3], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha image add constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.25 NppStatus nppiAddC_32f_C1IR (const Npp32f nConstant, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image add constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.26 NppStatus nppiAddC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * nConstant, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image add constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.27 NppStatus nppiAddC_32f_C3IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.28 NppStatus nppiAddC_32f_C3R (const Npp32f * *pSrcI*, int *nSrcIStep*, const Npp32f *aConstants*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image add constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.29 NppStatus nppiAddC_32f_C4IR (const Npp32f *aConstants*[4], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.30 NppStatus nppiAddC_32f_C4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *aConstants*[4], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image add constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.31 NppStatus nppiAddC_32fc_AC4IR (const Npp32fc * *aConstants*[3], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.32 NppStatus nppiAddC_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *aConstants*[3], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image add constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.33 NppStatus nppiAddC_32fc_C1IR (const Npp32fc *nConstant*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.34 NppStatus nppiAddC_32fc_C1R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc *nConstant*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.35 NppStatus nppiAddC_32fc_C3IR (const Npp32fc *aConstants*[3], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.36 NppStatus nppiAddC_32fc_C3R (const Npp32fc * pSrcI, int nSrcIStep, const Npp32fc aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.37 NppStatus nppiAddC_32fc_C4IR (const Npp32fc aConstants[4], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image add constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.38 NppStatus nppiAddC_32fc_C4R (const Npp32fc * pSrcI, int nSrcIStep, const Npp32fc aConstants[4], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image add constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.39 NppStatus nppiAddC_32s_C1IRSfs (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.40 NppStatus nppiAddC_32s_C1RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.41 NppStatus nppiAddC_32s_C3IRSfs (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.42 NppStatus nppiAddC_32s_C3RSfs (const Npp32s * pSrcI, int nSrcIStep, const Npp32s aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.43 NppStatus nppiAddC_32sc_AC4IRSfs (const Npp32sc aConstants[3], Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.44 NppStatus nppiAddC_32sc_AC4RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.45 NppStatus nppiAddC_32sc_C1IRSfs (const Npp32sc *nConstant*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.46 NppStatus nppiAddC_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *nConstant*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.47 NppStatus nppiAddC_32sc_C3IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.48 NppStatus nppiAddC_32sc_C3RSfs (const Npp32sc * *pSrcI*, int *nSrcIStep*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.49 NppStatus nppiAddC_8u_AC4IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel..
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.50 NppStatus nppiAddC_8u_AC4RSfs (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha image add constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel..
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.7.2.51 NppStatus nppiAddC_8u_C1IRSfs (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image add constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.52 NppStatus nppiAddC_8u_C1RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.53 NppStatus nppiAddC_8u_C3IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel 8-bit unsigned char in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel..

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.54 NppStatus nppiAddC_8u_C3RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel..
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.55 NppStatus nppiAddC_8u_C4IRSfs (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image add constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.7.2.56 NppStatus nppiAddC_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image add constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel..
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8 MulC

Multiplies each pixel of an image by a constant value.

Functions

- `NppStatus nppiMulC_8u_C1RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

One 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C1IRSfs (const Npp8u nConstant, Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`

One 8-bit unsigned char channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C3RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Three 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`

Three 8-bit unsigned char channel 8-bit unsigned char in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_AC4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Four 8-bit unsigned char channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_AC4IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`

Four 8-bit unsigned char channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Four 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_8u_C4IRSfs (const Npp8u aConstants[4], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`

Four 8-bit unsigned char channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16u_C1RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

One 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16u_C1IRSfs (const Npp16u nConstant, Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`

One 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16u_C3RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Three 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_C3RSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_AC4IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16u_C4IRSfs** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_C1IRSfs** (const **Npp16s** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_C3IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_16s_AC4IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

- `NppStatus nppiMulC_16s_C4RSfs` (const `Npp16s *pSrc1`, int `nSrc1Step`, const `Npp16s aConstants[4]`, `Npp16s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16s_C4IRSfs` (const `Npp16s aConstants[4]`, `Npp16s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_C1RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc nConstant`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_C1IRSfs` (const `Npp16sc nConstant`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_C3RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc aConstants[3]`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_C3IRSfs` (const `Npp16sc aConstants[3]`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_AC4RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc aConstants[3]`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_16sc_AC4IRSfs` (const `Npp16sc aConstants[3]`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_32s_C1RSfs` (const `Npp32s *pSrc1`, int `nSrc1Step`, const `Npp32s nConstant`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 32-bit signed integer channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_32s_C1IRSfs` (const `Npp32s nConstant`, `Npp32s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 32-bit signed integer channel in place image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_32s_C3RSfs` (const `Npp32s *pSrc1`, int `nSrc1Step`, const `Npp32s aConstants[3]`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 32-bit signed integer channel image multiply by constant, scale, then clamp to saturated value.
- `NppStatus nppiMulC_32s_C3IRSfs` (const `Npp32s aConstants[3]`, `Npp32s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)

Three 32-bit signed integer channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** nConstant, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_C1IRSfs** (const **Npp32sc** nConstant, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_C3IRSfs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32sc_AC4IRSfs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

- **NppStatus nppiMulC_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** nConstant, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image multiply by constant.

- **NppStatus nppiMulC_32f_C1IR** (const **Npp32f** nConstant, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image multiply by constant.

- **NppStatus nppiMulC_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image multiply by constant.

- **NppStatus nppiMulC_32f_C3IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image multiply by constant.

- **NppStatus nppiMulC_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image multiply by constant.

- **NppStatus nppiMulC_32f_AC4IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Four 32-bit floating point channel with unmodified alpha in place image multiply by constant.
- **NppStatus nppiMulC_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[4], **Npp32f** *pDst, int nDstStep, **NppSize** oSizeROI)
Four 32-bit floating point channel image multiply by constant.
- **NppStatus nppiMulC_32f_C4IR** (const **Npp32f** aConstants[4], **Npp32f** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Four 32-bit floating point channel in place image multiply by constant.
- **NppStatus nppiMulC_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** nConstant, **Npp32fc** *pDst, int nDstStep, **NppSize** oSizeROI)
One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.
- **NppStatus nppiMulC_32fc_C1IR** (const **Npp32fc** nConstant, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.
- **NppStatus nppiMulC_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppSize** oSizeROI)
Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel multiply by constant.
- **NppStatus nppiMulC_32fc_C3IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.
- **NppStatus nppiMulC_32fc_AC4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppSize** oSizeROI)
Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image multiply by constant.
- **NppStatus nppiMulC_32fc_AC4IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image multiply by constant.
- **NppStatus nppiMulC_32fc_C4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[4], **Npp32fc** *pDst, int nDstStep, **NppSize** oSizeROI)
Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.
- **NppStatus nppiMulC_32fc_C4IR** (const **Npp32fc** aConstants[4], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppSize** oSizeROI)
Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.

7.8.1 Detailed Description

Multiples each pixel of an image by a constant value.

7.8.2 Function Documentation

7.8.2.1 NppStatus nppiMulC_16s_AC4IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.2 NppStatus nppiMulC_16s_AC4RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.3 NppStatus nppiMulC_16s_C1IRSfs (const Npp16s *nConstant*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.4 NppStatus nppiMulC_16s_C1RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *nConstant*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.5 NppStatus nppiMulC_16s_C3IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.6 NppStatus nppiMulC_16s_C3RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s * *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.7 NppStatus nppiMulC_16s_C4IRSfs (const Npp16s * *aConstants*[4], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.8 NppStatus nppiMulC_16s_C4RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s * *aConstants*[4], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.9 NppStatus nppiMulC_16sc_AC4IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.10 NppStatus nppiMulC_16sc_AC4RSfs (const Npp16sc * *pSrcI*, int *nSrcIStep*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.11 NppStatus nppiMulC_16sc_C1IRSfs (const Npp16sc *nConstant*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

- nConstant* Constant.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.12 NppStatus nppiMulC_16sc_C1RSFs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *nConstant*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nConstant* Constant.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.13 NppStatus nppiMulC_16sc_C3IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.14 NppStatus nppiMulC_16sc_C3RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc aConstants[3], Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.15 NppStatus nppiMulC_16u_AC4IRSfs (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.16 NppStatus nppiMulC_16u_AC4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.17 NppStatus nppiMulC_16u_C1IRSfs (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.18 NppStatus nppiMulC_16u_C1RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *nConstant*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.19 NppStatus nppiMulC_16u_C3IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.20 NppStatus nppiMulC_16u_C3RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.21 NppStatus nppiMulC_16u_C4IRSfs (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.22 NppStatus nppiMulC_16u_C4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.23 NppStatus nppiMulC_32f_AC4IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.24 NppStatus nppiMulC_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f aConstants[3], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.25 NppStatus nppiMulC_32f_C1IR (const Npp32f nConstant, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image multiply by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.26 NppStatus nppiMulC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f nConstant, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.27 NppStatus nppiMulC_32f_C3IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.28 NppStatus nppiMulC_32f_C3R (const Npp32f * *pSrcI*, int *nSrcIStep*, const Npp32f *aConstants*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image multiply by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.29 NppStatus nppiMulC_32f_C4IR (const Npp32f *aConstants*[4], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.30 NppStatus nppiMulC_32f_C4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[4], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.31 NppStatus nppiMulC_32fc_AC4IR (const Npp32fc * aConstants[3], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.32 NppStatus nppiMulC_32fc_AC4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.33 NppStatus nppiMulC_32fc_C1IR (const Npp32fc *nConstant*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.34 NppStatus nppiMulC_32fc_C1R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc *nConstant*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.35 NppStatus nppiMulC_32fc_C3IR (const Npp32fc *aConstants*[3], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.36 NppStatus nppiMulC_32fc_C3R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.37 NppStatus nppiMulC_32fc_C4IR (const Npp32fc aConstants[4], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image multiply by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.38 NppStatus nppiMulC_32fc_C4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[4], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image multiply by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.39 NppStatus nppiMulC_32s_C1IRSfs (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.40 NppStatus nppiMulC_32s_C1RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.41 NppStatus nppiMulC_32s_C3IRSfs (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.42 NppStatus nppiMulC_32s_C3RSfs (const Npp32s * pSrcI, int nSrcIStep, const Npp32s aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.43 NppStatus nppiMulC_32sc_AC4IRSfs (const Npp32sc aConstants[3], Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.44 NppStatus nppiMulC_32sc_AC4RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.45 NppStatus nppiMulC_32sc_C1IRSfs (const Npp32sc *nConstant*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.46 NppStatus nppiMulC_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *nConstant*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.47 NppStatus nppiMulC_32sc_C3IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.48 NppStatus nppiMulC_32sc_C3RSfs (const Npp32sc * *pSrcI*, int *nSrcIStep*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.49 NppStatus nppiMulC_8u_AC4IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.50 NppStatus nppiMulC_8u_AC4RSfs (const Npp8u * *pSrcI*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.8.2.51 NppStatus nppiMulC_8u_C1IRSfs (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.52 NppStatus nppiMulC_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.53 NppStatus nppiMulC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel 8-bit unsigned char in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.54 NppStatus nppiMulC_8u_C3RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.55 NppStatus nppiMulC_8u_C4IRSfs (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image multiply by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.8.2.56 NppStatus nppiMulC_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image multiply by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9 MulCScale

Multiples each pixel of an image by a constant value then scales the result by the maximum value for the data bit width.

Functions

- **NppStatus nppiMulCScale_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C1IR** (const **Npp8u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C3IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel 8-bit unsigned char in place image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel with unmodified alpha image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_AC4IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel with unmodified alpha in place image multiply by constant, scale and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_8u_C4IR** (const **Npp8u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image multiply by constant and scale by max bit width value.

- **NppStatus nppiMulCScale_16u_C1IR** (const **Npp16u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

- `NppStatus nppiMulCScale_16u_C3R` (const `Npp16u *pSrc1`, int `nSrc1Step`, const `Npp16u aConstants[3]`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)
Three 16-bit unsigned short channel image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_C3IR` (const `Npp16u aConstants[3]`, `Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)
Three 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_AC4R` (const `Npp16u *pSrc1`, int `nSrc1Step`, const `Npp16u aConstants[3]`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)
Four 16-bit unsigned short channel with unmodified alpha image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_AC4IR` (const `Npp16u aConstants[3]`, `Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)
Four 16-bit unsigned short channel with unmodified alpha in place image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_C4R` (const `Npp16u *pSrc1`, int `nSrc1Step`, const `Npp16u aConstants[4]`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)
Four 16-bit unsigned short channel image multiply by constant and scale by max bit width value.
- `NppStatus nppiMulCScale_16u_C4IR` (const `Npp16u aConstants[4]`, `Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)
Four 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

7.9.1 Detailed Description

Multiplies each pixel of an image by a constant value then scales the result by the maximum value for the data bit width.

7.9.2 Function Documentation

7.9.2.1 `NppStatus nppiMulCScale_16u_AC4IR` (const `Npp16u aConstants[3]`, `Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

Four 16-bit unsigned short channel with unmodified alpha in place image multiply by constant and scale by max bit width value.

Parameters:

`aConstants` fixed size array of constant values, one per channel.
`pSrcDst` In-Place Image Pointer.
`nSrcDstStep` In-Place-Image Line Step.
`oSizeROI` Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.2 NppStatus nppiMulCScale_16u_AC4R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel with unmodified alpha image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.3 NppStatus nppiMulCScale_16u_C1IR (const Npp16u nConstant, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.4 NppStatus nppiMulCScale_16u_C1R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.5 NppStatus nppiMulCScale_16u_C3IR (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.6 NppStatus nppiMulCScale_16u_C3R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image multiply by constant and scale by max bit width value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.7 NppStatus nppiMulCScale_16u_C4IR (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image multiply by constant and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.8 NppStatus nppiMulCScale_16u_C4R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **aConstants*[4], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.9 NppStatus nppiMulCScale_8u_AC4IR (const Npp8u **aConstants*[3], Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel with unmodified alpha in place image multiply by constant, scale and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.10 NppStatus nppiMulCScale_8u_AC4R (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **aConstants*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel with unmodified alpha image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.11 NppStatus nppiMulCScale_8u_C1IR (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image multiply by constant and scale by max bit width value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.12 NppStatus nppiMulCScale_8u_C1R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.13 NppStatus nppiMulCScale_8u_C3IR (const Npp8u *aConstants[3]*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel 8-bit unsigned char in place image multiply by constant and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.14 NppStatus nppiMulCScale_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.15 NppStatus nppiMulCScale_8u_C4IR (const Npp8u aConstants[4], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image multiply by constant and scale by max bit width value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.9.2.16 NppStatus nppiMulCScale_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image multiply by constant and scale by max bit width value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10 SubC

Subtracts a constant value from each pixel of an image.

Functions

- `NppStatus nppiSubC_8u_C1RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C1IRSfs (const Npp8u nConstant, Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C3RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel 8-bit unsigned char in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_AC4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_AC4IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_8u_C4IRSfs (const Npp8u aConstants[4], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_16u_C1RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_16u_C1IRSfs (const Npp16u nConstant, Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.
- `NppStatus nppiSubC_16u_C3RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Three 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_C3IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_AC4IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16u_C4IRSfs** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C1IRSfs** (const **Npp16s** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C3IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_AC4IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[4], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16s_C4IRSfs** (const **Npp16s** aConstants[4], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** nConstant, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_C1IRSfs** (const **Npp16sc** nConstant, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** aConstants[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_C3IRSfs** (const **Npp16sc** aConstants[3], **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** aConstants[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_16sc_AC4IRSfs** (const **Npp16sc** aConstants[3], **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** nConstant, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32s_C1IRSfs** (const **Npp32s** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32s_C3IRSfs** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel in place image subtract constant, scale, then clamp to saturated value.

- **NppStatus nppiSubC_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** nConstant, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_C1IRSfs** (const **Npp32sc** nConstant, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_C3IRSfs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** aConstants[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32sc_AC4IRSfs** (const **Npp32sc** aConstants[3], **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.
- **NppStatus nppiSubC_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** nConstant, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image subtract constant.
- **NppStatus nppiSubC_32f_C1IR** (const **Npp32f** nConstant, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image subtract constant.
- **NppStatus nppiSubC_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image subtract constant.
- **NppStatus nppiSubC_32f_C3IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image subtract constant.
- **NppStatus nppiSubC_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image subtract constant.
- **NppStatus nppiSubC_32f_AC4IR** (const **Npp32f** aConstants[3], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image subtract constant.

Four 32-bit floating point channel with unmodified alpha in place image subtract constant.

- **NppStatus nppiSubC_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** aConstants[4], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image subtract constant.

- **NppStatus nppiSubC_32f_C4IR** (const **Npp32f** aConstants[4], **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image subtract constant.

- **NppStatus nppiSubC_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** nConstant, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

- **NppStatus nppiSubC_32fc_C1IR** (const **Npp32fc** nConstant, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

- **NppStatus nppiSubC_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

- **NppStatus nppiSubC_32fc_C3IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

- **NppStatus nppiSubC_32fc_AC4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[3], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image subtract constant.

- **NppStatus nppiSubC_32fc_AC4IR** (const **Npp32fc** aConstants[3], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image subtract constant.

- **NppStatus nppiSubC_32fc_C4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** aConstants[4], **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

- **NppStatus nppiSubC_32fc_C4IR** (const **Npp32fc** aConstants[4], **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

7.10.1 Detailed Description

Subtracts a constant value from each pixel of an image.

7.10.2 Function Documentation

7.10.2.1 NppStatus nppiSubC_16s_AC4IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.2 NppStatus nppiSubC_16s_AC4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.3 NppStatus nppiSubC_16s_C1IRSfs (const Npp16s *nConstant*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.4 NppStatus nppiSubC_16s_C1RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s nConstant, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.5 NppStatus nppiSubC_16s_C3IRSfs (const Npp16s aConstants[3], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.6 NppStatus nppiSubC_16s_C3RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * aConstants[3], Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.7 NppStatus nppiSubC_16s_C4IRSfs (const Npp16s aConstants[4], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.8 NppStatus nppiSubC_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * aConstants[4], Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.9 NppStatus nppiSubC_16sc_AC4IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.10 NppStatus nppiSubC_16sc_AC4RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.11 NppStatus nppiSubC_16sc_C1IRSfs (const Npp16sc *nConstant*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.12 NppStatus nppiSubC_16sc_C1RSfs (const Npp16sc * *pSrcI*, int *nSrcIStep*, const Npp16sc *nConstant*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.13 NppStatus nppiSubC_16sc_C3IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.14 NppStatus nppiSubC_16sc_C3RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc aConstants[3], Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.15 NppStatus nppiSubC_16u_AC4IRSfs (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.16 NppStatus nppiSubC_16u_AC4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.17 NppStatus nppiSubC_16u_C1IRSfs (const Npp16u nConstant, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.18 NppStatus nppiSubC_16u_C1RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.19 NppStatus nppiSubC_16u_C3IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.20 NppStatus nppiSubC_16u_C3RSfs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.21 NppStatus nppiSubC_16u_C4IRSfs (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.22 NppStatus nppiSubC_16u_C4RSFs (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.23 NppStatus nppiSubC_32f_AC4IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.24 NppStatus nppiSubC_32f_AC4R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **aConstants*[3], Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image subtract constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.25 NppStatus nppiSubC_32f_C1IR (const Npp32f *nConstant*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image subtract constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.26 NppStatus nppiSubC_32f_C1R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **nConstant*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image subtract constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.27 NppStatus nppiSubC_32f_C3IR (const Npp32f *aConstants*[3], Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.28 NppStatus nppiSubC_32f_C3R (const Npp32f **pSrcI*, int *nSrcIStep*, const Npp32f *aConstants*[3], Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image subtract constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.29 NppStatus nppiSubC_32f_C4IR (const Npp32f *aConstants*[4], Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.30 NppStatus nppiSubC_32f_C4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *aConstants*[4], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image subtract constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.31 NppStatus nppiSubC_32fc_AC4IR (const Npp32fc * *aConstants*[3], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.32 NppStatus nppiSubC_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *aConstants*[3], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image subtract constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.33 NppStatus nppiSubC_32fc_C1IR (const Npp32fc *nConstant*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.34 NppStatus nppiSubC_32fc_C1R (const Npp32fc **pSrcI*, int *nSrcIStep*, const Npp32fc *nConstant*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.35 NppStatus nppiSubC_32fc_C3IR (const Npp32fc *aConstants*[3], Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.36 NppStatus nppiSubC_32fc_C3R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc * *aConstants*[3], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.37 NppStatus nppiSubC_32fc_C4IR (const Npp32fc *aConstants*[4], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image subtract constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.38 NppStatus nppiSubC_32fc_C4R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc * *aConstants*[4], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image subtract constant.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.39 NppStatus nppiSubC_32s_C1IRSfs (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.40 NppStatus nppiSubC_32s_C1RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.41 NppStatus nppiSubC_32s_C3IRSfs (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.42 NppStatus nppiSubC_32s_C3RSfs (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.43 NppStatus nppiSubC_32sc_AC4IRSfs (const Npp32sc * aConstants[3], Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.44 NppStatus nppiSubC_32sc_AC4RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc aConstants[3], Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.45 NppStatus nppiSubC_32sc_C1IRSfs (const Npp32sc nConstant, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.46 NppStatus nppiSubC_32sc_C1RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc nConstant, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.47 NppStatus nppiSubC_32sc_C3IRSfs (const Npp32sc **aConstants*[3], Npp32sc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.48 NppStatus nppiSubC_32sc_C3RSfs (const Npp32sc **pSrc1*, int *nSrc1Step*, const Npp32sc **aConstants*[3], Npp32sc **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.49 NppStatus nppiSubC_8u_AC4IRSfs (const Npp8u *aConstants*[3], Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.50 NppStatus nppiSubC_8u_AC4RSfs (const Npp8u **pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.10.2.51 NppStatus nppiSubC_8u_C1IRSfs (const Npp8u *nConstant*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.52 NppStatus nppiSubC_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.53 NppStatus nppiSubC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel 8-bit unsigned char in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.54 NppStatus nppiSubC_8u_C3RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.55 NppStatus nppiSubC_8u_C4IRSfs (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image subtract constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.10.2.56 NppStatus nppiSubC_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11 DivC

Divides each pixel of an image by a constant value.

Functions

- `NppStatus nppiDivC_8u_C1RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C1IRSfs (const Npp8u nConstant, Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C3RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C3IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel 8-bit unsigned char in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_AC4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_AC4IRSfs (const Npp8u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C4RSfs (const Npp8u *pSrc1, int nSrc1Step, const Npp8u aConstants[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_8u_C4IRSfs (const Npp8u aConstants[4], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16u_C1RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16u_C1IRSfs (const Npp16u nConstant, Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16u_C3RSfs (const Npp16u *pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`

Three 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_C3IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_AC4IRSfs** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16u_C4IRSfs** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_C1IRSfs** (const **Npp16s** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_C3IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_16s_AC4IRSfs** (const **Npp16s** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

- `NppStatus nppiDivC_16s_C4RSfs` (const `Npp16s *pSrc1`, int `nSrc1Step`, const `Npp16s aConstants[4]`, `Npp16s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16s_C4IRSfs` (const `Npp16s aConstants[4]`, `Npp16s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_C1RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc nConstant`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_C1IRSfs` (const `Npp16sc nConstant`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_C3RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc aConstants[3]`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_C3IRSfs` (const `Npp16sc aConstants[3]`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_AC4RSfs` (const `Npp16sc *pSrc1`, int `nSrc1Step`, const `Npp16sc aConstants[3]`, `Npp16sc *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_16sc_AC4IRSfs` (const `Npp16sc aConstants[3]`, `Npp16sc *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_32s_C1RSfs` (const `Npp32s *pSrc1`, int `nSrc1Step`, const `Npp32s nConstant`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 32-bit signed integer channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_32s_C1IRSfs` (const `Npp32s nConstant`, `Npp32s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
One 32-bit signed integer channel in place image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_32s_C3RSfs` (const `Npp32s *pSrc1`, int `nSrc1Step`, const `Npp32s aConstants[3]`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)
Three 32-bit signed integer channel image divided by constant, scale, then clamp to saturated value.
- `NppStatus nppiDivC_32s_C3IRSfs` (const `Npp32s aConstants[3]`, `Npp32s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, int `nScaleFactor`)

Three 32-bit signed integer channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_C1RSfs** (const Npp32sc *pSrc1, int nSrc1Step, const Npp32sc nConstant, Npp32sc *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_C1IRSfs** (const Npp32sc nConstant, Npp32sc *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_C3RSfs** (const Npp32sc *pSrc1, int nSrc1Step, const Npp32sc aConstants[3], Npp32sc *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_C3IRSfs** (const Npp32sc aConstants[3], Npp32sc *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_AC4RSfs** (const Npp32sc *pSrc1, int nSrc1Step, const Npp32sc aConstants[3], Npp32sc *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32sc_AC4IRSfs** (const Npp32sc aConstants[3], Npp32sc *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

- **NppStatus nppiDivC_32f_C1R** (const Npp32f *pSrc1, int nSrc1Step, const Npp32f nConstant, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image divided by constant.

- **NppStatus nppiDivC_32f_C1IR** (const Npp32f nConstant, Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image divided by constant.

- **NppStatus nppiDivC_32f_C3R** (const Npp32f *pSrc1, int nSrc1Step, const Npp32f aConstants[3], Npp32f *pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image divided by constant.

- **NppStatus nppiDivC_32f_C3IR** (const Npp32f aConstants[3], Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image divided by constant.

- **NppStatus nppiDivC_32f_AC4R** (const Npp32f *pSrc1, int nSrc1Step, const Npp32f aConstants[3], Npp32f *pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha image divided by constant.

- **NppStatus nppiDivC_32f_AC4IR** (const [Npp32f](#) aConstants[3], [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image divided by constant.
- **NppStatus nppiDivC_32f_C4R** (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) aConstants[4], [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel image divided by constant.
- **NppStatus nppiDivC_32f_C4IR** (const [Npp32f](#) aConstants[4], [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel in place image divided by constant.
- **NppStatus nppiDivC_32fc_C1R** (const [Npp32fc](#) *pSrc1, int nSrc1Step, const [Npp32fc](#) nConstant, [Npp32fc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.
- **NppStatus nppiDivC_32fc_C1IR** (const [Npp32fc](#) nConstant, [Npp32fc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.
- **NppStatus nppiDivC_32fc_C3R** (const [Npp32fc](#) *pSrc1, int nSrc1Step, const [Npp32fc](#) aConstants[3], [Npp32fc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.
- **NppStatus nppiDivC_32fc_C3IR** (const [Npp32fc](#) aConstants[3], [Npp32fc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.
- **NppStatus nppiDivC_32fc_AC4R** (const [Npp32fc](#) *pSrc1, int nSrc1Step, const [Npp32fc](#) aConstants[3], [Npp32fc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image divided by constant.
- **NppStatus nppiDivC_32fc_AC4IR** (const [Npp32fc](#) aConstants[3], [Npp32fc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image divided by constant.
- **NppStatus nppiDivC_32fc_C4R** (const [Npp32fc](#) *pSrc1, int nSrc1Step, const [Npp32fc](#) aConstants[4], [Npp32fc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.
- **NppStatus nppiDivC_32fc_C4IR** (const [Npp32fc](#) aConstants[4], [Npp32fc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.

7.11.1 Detailed Description

Divides each pixel of an image by a constant value.

7.11.2 Function Documentation

7.11.2.1 NppStatus nppiDivC_16s_AC4IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.2 NppStatus nppiDivC_16s_AC4RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *aConstants*[3], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.3 NppStatus nppiDivC_16s_C1IRSfs (const Npp16s *nConstant*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.4 NppStatus nppiDivC_16s_C1RSfs (const Npp16s * *pSrcI*, int *nSrcIStep*, const Npp16s *nConstant*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.5 NppStatus nppiDivC_16s_C3IRSfs (const Npp16s *aConstants*[3], Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.6 NppStatus nppiDivC_16s_C3RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * aConstants[3], Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.7 NppStatus nppiDivC_16s_C4IRSfs (const Npp16s aConstants[4], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.8 NppStatus nppiDivC_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * aConstants[4], Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.9 NppStatus nppiDivC_16sc_AC4IRSfs (const Npp16sc *aConstants*[3], Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.10 NppStatus nppiDivC_16sc_AC4RSfs (const Npp16sc * *pSrcI*, int *nSrcIStep*, const Npp16sc *aConstants*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.11 NppStatus nppiDivC_16sc_C1IRSfs (const Npp16sc *nConstant*, Npp16sc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.12 NppStatus nppiDivC_16sc_C1RSfs (const Npp16sc **pSrcI*, int *nSrcIStep*, const Npp16sc *nConstant*, Npp16sc **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.13 NppStatus nppiDivC_16sc_C3IRSfs (const Npp16sc *aConstants*[3], Npp16sc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.14 NppStatus nppiDivC_16sc_C3RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc aConstants[3], Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.15 NppStatus nppiDivC_16u_AC4IRSfs (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.16 NppStatus nppiDivC_16u_AC4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.17 NppStatus nppiDivC_16u_C1IRSfs (const Npp16u nConstant, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.18 NppStatus nppiDivC_16u_C1RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.19 NppStatus nppiDivC_16u_C3IRSfs (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.20 NppStatus nppiDivC_16u_C3RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.21 NppStatus nppiDivC_16u_C4IRSfs (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.22 NppStatus nppiDivC_16u_C4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.23 NppStatus nppiDivC_32f_AC4IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image divided by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.24 NppStatus nppiDivC_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[3], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha image divided by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.25 NppStatus nppiDivC_32f_C1IR (const Npp32f nConstant, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image divided by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.26 NppStatus nppiDivC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * nConstant, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image divided by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.27 NppStatus nppiDivC_32f_C3IR (const Npp32f *aConstants*[3], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image divided by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.28 NppStatus nppiDivC_32f_C3R (const Npp32f * *pSrcI*, int *nSrcIStep*, const Npp32f *aConstants*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image divided by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.29 NppStatus nppiDivC_32f_C4IR (const Npp32f *aConstants*[4], Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image divided by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.30 NppStatus nppiDivC_32f_C4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * aConstants[4], Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image divided by constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.31 NppStatus nppiDivC_32fc_AC4IR (const Npp32fc * aConstants[3], Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha in place image divided by constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.32 NppStatus nppiDivC_32fc_AC4R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * aConstants[3], Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel with unmodified alpha image divided by constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.33 NppStatus nppiDivC_32fc_C1IR (const Npp32fc *nConstant*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.34 NppStatus nppiDivC_32fc_C1R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc *nConstant*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.35 NppStatus nppiDivC_32fc_C3IR (const Npp32fc *aConstants[3]*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.36 NppStatus nppiDivC_32fc_C3R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc * *aConstants*[3], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.37 NppStatus nppiDivC_32fc_C4IR (const Npp32fc * *aConstants*[4], Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel in place image divided by constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.38 NppStatus nppiDivC_32fc_C4R (const Npp32fc * *pSrcI*, int *nSrcIStep*, const Npp32fc * *aConstants*[4], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit complex floating point (32-bit floating point real, 32-bit floating point imaginary) channel image divided by constant.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.39 NppStatus nppiDivC_32s_C1IRSfs (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.40 NppStatus nppiDivC_32s_C1RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.41 NppStatus nppiDivC_32s_C3IRSfs (const Npp32s *aConstants[3]*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.42 NppStatus nppiDivC_32s_C3RSfs (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.43 NppStatus nppiDivC_32sc_AC4IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.44 NppStatus nppiDivC_32sc_AC4RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.45 NppStatus nppiDivC_32sc_C1IRSfs (const Npp32sc *nConstant*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.46 NppStatus nppiDivC_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *nConstant*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.47 NppStatus nppiDivC_32sc_C3IRSfs (const Npp32sc *aConstants*[3], Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.48 NppStatus nppiDivC_32sc_C3RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc *aConstants*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed complex integer (32-bit real, 32-bit imaginary) channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.49 NppStatus nppiDivC_8u_AC4IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.50 NppStatus nppiDivC_8u_AC4RSfs (const Npp8u * *pSrcI*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel with unmodified alpha image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.11.2.51 NppStatus nppiDivC_8u_C1IRSfs (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.52 NppStatus nppiDivC_8u_C1RSfs (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.53 NppStatus nppiDivC_8u_C3IRSfs (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel 8-bit unsigned char in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.54 NppStatus nppiDivC_8u_C3RSfs (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.55 NppStatus nppiDivC_8u_C4IRSfs (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image divided by constant, scale, then clamp to saturated value.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.11.2.56 NppStatus nppiDivC_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12 AbsDiffC

Determines absolute difference between each pixel of an image and a constant value.

Functions

- `NppStatus nppiAbsDiffC_8u_C1R (const Npp8u *pSrc1, int nSrc1Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, Npp8u nConstant)`

One 8-bit unsigned char channel image absolute difference with constant.

- `NppStatus nppiAbsDiffC_16u_C1R (const Npp16u *pSrc1, int nSrc1Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, Npp16u nConstant)`

One 16-bit unsigned short channel image absolute difference with constant.

- `NppStatus nppiAbsDiffC_32f_C1R (const Npp32f *pSrc1, int nSrc1Step, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, Npp32f nConstant)`

One 32-bit floating point channel image absolute difference with constant.

7.12.1 Detailed Description

Determines absolute difference between each pixel of an image and a constant value.

7.12.2 Function Documentation

7.12.2.1 `NppStatus nppiAbsDiffC_16u_C1R (const Npp16u * pSrc1, int nSrc1Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, Npp16u nConstant)`

One 16-bit unsigned short channel image absolute difference with constant.

Parameters:

`pSrc1` Source-Image Pointer.

`nSrc1Step` Source-Image Line Step.

`nConstant` Constant.

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.12.2.2 `NppStatus nppiAbsDiffC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, Npp32f nConstant)`

One 32-bit floating point channel image absolute difference with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.12.2.3 NppStatus nppiAbsDiffC_8u_C1R (const Npp8u **pSrc1*, int *nSrc1Step*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nConstant*)

One 8-bit unsigned char channel image absolute difference with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13 Add

Pixel by pixel addition of two images.

Functions

- **NppStatus nppiAdd_8u_C1RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C1IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C3RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C3IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_AC4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_AC4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_8u_C4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C1RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_16u_C1RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_C1IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_C3IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_16sc_AC4IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

- **NppStatus nppiAdd_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.
- **NppStatus nppiAdd_32s_C1IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32s_C3IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_C1IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_C3IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiAdd_32sc_AC4IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiAdd_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image addition.

- **NppStatus nppiAdd_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image addition.

- **NppStatus nppiAdd_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image addition.

- **NppStatus nppiAdd_32f_C3IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image addition.

- **NppStatus nppiAdd_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image addition.

- **NppStatus nppiAdd_32f_AC4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image addition.

- **NppStatus nppiAdd_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image addition.

- **NppStatus nppiAdd_32f_C4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image addition.

- **NppStatus nppiAdd_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

- **NppStatus nppiAdd_32fc_C1IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

- **NppStatus nppiAdd_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

- **NppStatus nppiAdd_32fc_C3IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

- **NppStatus nppiAdd_32fc_AC4R** (const [Npp32fc](#) *[pSrc1](#), int [nSrc1Step](#), const [Npp32fc](#) *[pSrc2](#), int [nSrc2Step](#), [Npp32fc](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image addition.
- **NppStatus nppiAdd_32fc_AC4IR** (const [Npp32fc](#) *[pSrc](#), int [nSrcStep](#), [Npp32fc](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image addition.
- **NppStatus nppiAdd_32fc_C4R** (const [Npp32fc](#) *[pSrc1](#), int [nSrc1Step](#), const [Npp32fc](#) *[pSrc2](#), int [nSrc2Step](#), [Npp32fc](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.
- **NppStatus nppiAdd_32fc_C4IR** (const [Npp32fc](#) *[pSrc](#), int [nSrcStep](#), [Npp32fc](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

7.13.1 Detailed Description

Pixel by pixel addition of two images.

7.13.2 Function Documentation

7.13.2.1 NppStatus nppiAdd_16s_AC4IRSfs (const [Npp16s](#) *[pSrc](#), int [nSrcStep](#), [Npp16s](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#), int [nScaleFactor](#))

Four 16-bit signed short channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- [pSrc](#) Source-Image Pointer.
- [nSrcStep](#) Source-Image Line Step.
- [pSrcDst](#) In-Place Image Pointer.
- [nSrcDstStep](#) In-Place-Image Line Step.
- [oSizeROI](#) Region-of-Interest (ROI).
- [nScaleFactor](#) Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.2 NppStatus nppiAdd_16s_AC4RSfs (const [Npp16s](#) *[pSrc1](#), int [nSrc1Step](#), const [Npp16s](#) *[pSrc2](#), int [nSrc2Step](#), [Npp16s](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#), int [nScaleFactor](#))

Four 16-bit signed short channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.3 NppStatus nppiAdd_16s_C1IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.4 NppStatus nppiAdd_16s_C1RSFs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.5 NppStatus nppiAdd_16s_C3IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.6 NppStatus nppiAdd_16s_C3RSFs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.7 NppStatus nppiAdd_16s_C4IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.8 NppStatus nppiAdd_16s_C4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.9 NppStatus nppiAdd_16sc_AC4IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.10 NppStatus nppiAdd_16sc_AC4RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.11 NppStatus nppiAdd_16sc_C1IRSfs (const Npp16sc * pSrc, int nSrcStep, Npp16sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.12 NppStatus nppiAdd_16sc_C1RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.13 NppStatus nppiAdd_16sc_C3IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.14 NppStatus nppiAdd_16sc_C3RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.15 NppStatus nppiAdd_16u_AC4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.16 NppStatus nppiAdd_16u_AC4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.17 NppStatus nppiAdd_16u_C1IRSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.18 NppStatus nppiAdd_16u_C1RSfs (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.19 NppStatus nppiAdd_16u_C3IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.20 NppStatus nppiAdd_16u_C3RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.21 NppStatus nppiAdd_16u_C4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.22 NppStatus nppiAdd_16u_C4RSfs (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.23 NppStatus nppiAdd_32f_AC4IR (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.24 NppStatus nppiAdd_32f_AC4R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **pSrc2*, int *nSrc2Step*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image addition.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.25 NppStatus nppiAdd_32f_C1IR (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.26 NppStatus nppiAdd_32f_C1R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **pSrc2*, int *nSrc2Step*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image addition.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.27 NppStatus nppiAdd_32f_C3IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image addition.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.28 NppStatus nppiAdd_32f_C3R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image addition.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.29 NppStatus nppiAdd_32f_C4IR (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.30 NppStatus nppiAdd_32f_C4R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **pSrc2*, int *nSrc2Step*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image addition.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.31 NppStatus nppiAdd_32fc_AC4IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.32 NppStatus nppiAdd_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image addition.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.33 NppStatus nppiAdd_32fc_C1IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.34 NppStatus nppiAdd_32fc_C1R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.35 NppStatus nppiAdd_32fc_C3IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.36 NppStatus nppiAdd_32fc_C3R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.37 NppStatus nppiAdd_32fc_C4IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image addition.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.38 NppStatus nppiAdd_32fc_C4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image addition.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.39 NppStatus nppiAdd_32s_C1IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.40 NppStatus nppiAdd_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

32-bit image add. Add the pixel values of corresponding pixels in the ROI and write them to the output image.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.41 NppStatus nppiAdd_32s_C1RSfs (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.42 NppStatus nppiAdd_32s_C3IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.43 NppStatus nppiAdd_32s_C3RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.44 NppStatus nppiAdd_32sc_AC4IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.45 NppStatus nppiAdd_32sc_AC4RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.46 NppStatus nppiAdd_32sc_C1IRSfs (const Npp32sc * pSrc, int nSrcStep, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.47 NppStatus nppiAdd_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.48 NppStatus nppiAdd_32sc_C3IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.49 NppStatus nppiAdd_32sc_C3RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image addition, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.50 NppStatus nppiAdd_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.13.2.51 NppStatus nppiAdd_8u_AC4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.52 NppStatus nppiAdd_8u_C1IRSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.53 NppStatus nppiAdd_8u_C1RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.54 NppStatus nppiAdd_8u_C3IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.55 NppStatus nppiAdd_8u_C3RSfs (const Npp8u * pSrc1, const Npp8u * pSrc2, int nSrc1Step, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.56 NppStatus nppiAdd_8u_C4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image addition, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.13.2.57 NppStatus nppiAdd_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image addition, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.14 AddSquare

Pixel by pixel addition of squared pixels from source image to floating point pixel values of destination image.

Functions

- [NppStatus nppiAddSquare_8u32f_C1IMR](#) (const [Npp8u](#) *pSrc, int nSrcStep, const [Npp8u](#) *pMask, int nMaskStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 8-bit unsigned char channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- [NppStatus nppiAddSquare_8u32f_C1IR](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 8-bit unsigned char channel image squared then added to in place floating point destination image.
- [NppStatus nppiAddSquare_16u32f_C1IMR](#) (const [Npp16u](#) *pSrc, int nSrcStep, const [Npp8u](#) *pMask, int nMaskStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 16-bit unsigned short channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- [NppStatus nppiAddSquare_16u32f_C1IR](#) (const [Npp16u](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 16-bit unsigned short channel image squared then added to in place floating point destination image.
- [NppStatus nppiAddSquare_32f_C1IMR](#) (const [Npp32f](#) *pSrc, int nSrcStep, const [Npp8u](#) *pMask, int nMaskStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- [NppStatus nppiAddSquare_32f_C1IR](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel image squared then added to in place floating point destination image.

7.14.1 Detailed Description

Pixel by pixel addition of squared pixels from source image to floating point pixel values of destination image.

7.14.2 Function Documentation

7.14.2.1 NppStatus nppiAddSquare_16u32f_C1IMR (const [Npp16u](#) *pSrc, int nSrcStep, const [Npp8u](#) *pMask, int nMaskStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 16-bit unsigned short channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.14.2.2 NppStatus nppiAddSquare_16u32f_C1IR (const Npp16u **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image squared then added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.14.2.3 NppStatus nppiAddSquare_32f_C1IMR (const Npp32f **pSrc*, int *nSrcStep*, const Npp8u **pMask*, int *nMaskStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.14.2.4 NppStatus nppiAddSquare_32f_C1IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image squared then added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.14.2.5 NppStatus nppiAddSquare_8u32f_C1IMR (const Npp8u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image squared then added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.14.2.6 NppStatus nppiAddSquare_8u32f_C1IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image squared then added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.15 AddProduct

Pixel by pixel addition of product of pixels from two source images to floating point pixel values of destination image.

Functions

- **NppStatus nppiAddProduct_8u32f_C1IMR** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- **NppStatus nppiAddProduct_8u32f_C1IR** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image product added to in place floating point destination image.
- **NppStatus nppiAddProduct_16u32f_C1IMR** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- **NppStatus nppiAddProduct_16u32f_C1IR** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image product added to in place floating point destination image.
- **NppStatus nppiAddProduct_32f_C1IMR** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).
- **NppStatus nppiAddProduct_32f_C1IR** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image product added to in place floating point destination image.

7.15.1 Detailed Description

Pixel by pixel addition of product of pixels from two source images to floating point pixel values of destination image.

7.15.2 Function Documentation

- 7.15.2.1 NppStatus nppiAddProduct_16u32f_C1IMR (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)**

One 16-bit unsigned short channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.15.2.2 NppStatus nppiAddProduct_16u32f_C1IR (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel image product added to in place floating point destination image.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.15.2.3 NppStatus nppiAddProduct_32f_C1IMR (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.

pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.15.2.4 NppStatus nppiAddProduct_32f_C1IR (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image product added to in place floating point destination image.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.15.2.5 NppStatus nppiAddProduct_8u32f_C1IMR (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, const Npp8u * *pMask*, int *nMaskStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image product added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.15.2.6 NppStatus nppiAddProduct_8u32f_C1IR (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **pSrc2*, int *nSrc2Step*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image product added to in place floating point destination image.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16 AddWeighted

Pixel by pixel addition of alpha weighted pixel values from a source image to floating point pixel values of destination image.

Functions

- **NppStatus nppiAddWeighted_8u32f_C1IMR** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 8-bit unsigned char channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

- **NppStatus nppiAddWeighted_8u32f_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 8-bit unsigned char channel alpha weighted image added to in place floating point destination image.

- **NppStatus nppiAddWeighted_16u32f_C1IMR** (const **Npp16u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 16-bit unsigned short channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

- **NppStatus nppiAddWeighted_16u32f_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 16-bit unsigned short channel alpha weighted image added to in place floating point destination image.

- **NppStatus nppiAddWeighted_32f_C1IMR** (const **Npp32f** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 32-bit floating point channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

- **NppStatus nppiAddWeighted_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **Npp32f** nAlpha)

One 32-bit floating point channel alpha weighted image added to in place floating point destination image.

7.16.1 Detailed Description

Pixel by pixel addition of alpha weighted pixel values from a source image to floating point pixel values of destination image.

7.16.2 Function Documentation

- 7.16.2.1 NppStatus nppiAddWeighted_16u32f_C1IMR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)**

One 16-bit unsigned short channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.2 NppStatus nppiAddWeighted_16u32f_C1IR (const Npp16u * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)

One 16-bit unsigned short channel alpha weighted image added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.3 NppStatus nppiAddWeighted_32f_C1IMR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)

One 32-bit floating point channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.4 NppStatus nppiAddWeighted_32f_C1IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)

One 32-bit floating point channel alpha weighted image added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.5 NppStatus nppiAddWeighted_8u32f_C1IMR (const Npp8u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32f nAlpha)

One 8-bit unsigned char channel alpha weighted image added to in place floating point destination image using filter mask (updates destination when mask is non-zero).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.16.2.6 NppStatus nppiAddWeighted_8u32f_C1IR (const Npp8u **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, Npp32f *nAlpha*)

One 8-bit unsigned char channel alpha weighted image added to in place floating point destination image.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAlpha Alpha weight to be applied to source image pixels (0.0F to 1.0F)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17 Mul

Pixel by pixel multiply of two images.

Functions

- **NppStatus nppiMul_8u_C1RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C1IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C3RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C3IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_AC4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_AC4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_8u_C4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C1RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16u_C1IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_C1IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_C3IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_16sc_AC4IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiMul_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.
- **NppStatus nppiMul_32s_C1IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32s_C3IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_C1IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_C3IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiMul_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- [NppStatus nppiMul_32sc_AC4IRSfs](#) (const [Npp32sc](#) *pSrc, int nSrcStep, [Npp32sc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- [NppStatus nppiMul_32f_C1R](#) (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) *pSrc2, int nSrc2Step, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel image multiplication.

- [NppStatus nppiMul_32f_C1IR](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel in place image multiplication.

- [NppStatus nppiMul_32f_C3R](#) (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) *pSrc2, int nSrc2Step, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three 32-bit floating point channel image multiplication.

- [NppStatus nppiMul_32f_C3IR](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel in place image multiplication.

- [NppStatus nppiMul_32f_AC4R](#) (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) *pSrc2, int nSrc2Step, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel with unmodified alpha image multiplication.

- [NppStatus nppiMul_32f_AC4IR](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image multiplication.

- [NppStatus nppiMul_32f_C4R](#) (const [Npp32f](#) *pSrc1, int nSrc1Step, const [Npp32f](#) *pSrc2, int nSrc2Step, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel image multiplication.

- [NppStatus nppiMul_32f_C4IR](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel in place image multiplication.

- [NppStatus nppiMul_32fc_C1R](#) (const [Npp32fc](#) *pSrc1, int nSrc1Step, const [Npp32fc](#) *pSrc2, int nSrc2Step, [Npp32fc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

- [NppStatus nppiMul_32fc_C1IR](#) (const [Npp32fc](#) *pSrc, int nSrcStep, [Npp32fc](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

- [NppStatus nppiMul_32fc_C3R](#) (const [Npp32fc](#) *pSrc1, int nSrc1Step, const [Npp32fc](#) *pSrc2, int nSrc2Step, [Npp32fc](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

- **NppStatus nppiMul_32fc_C3IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.
- **NppStatus nppiMul_32fc_AC4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiplication.
- **NppStatus nppiMul_32fc_AC4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiplication.
- **NppStatus nppiMul_32fc_C4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.
- **NppStatus nppiMul_32fc_C4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

7.17.1 Detailed Description

Pixel by pixel multiply of two images.

7.17.2 Function Documentation

7.17.2.1 NppStatus nppiMul_16s_AC4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc** Source-Image Pointer.
- nSrcStep** Source-Image Line Step.
- pSrcDst** In-Place Image Pointer.
- nSrcDstStep** In-Place-Image Line Step.
- oSizeROI** Region-of-Interest (ROI).
- nScaleFactor** Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.2 NppStatus nppiMul_16s_AC4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.3 NppStatus nppiMul_16s_C1IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.4 NppStatus nppiMul_16s_C1RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.5 NppStatus nppiMul_16s_C3IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.6 NppStatus nppiMul_16s_C3RSFs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.7 NppStatus nppiMul_16s_C4IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.8 NppStatus nppiMul_16s_C4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.9 NppStatus nppiMul_16sc_AC4IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.10 NppStatus nppiMul_16sc_AC4RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.11 NppStatus nppiMul_16sc_C1IRSfs (const Npp16sc * pSrc, int nSrcStep, Npp16sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.12 NppStatus nppiMul_16sc_C1RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.13 NppStatus nppiMul_16sc_C3IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.14 NppStatus nppiMul_16sc_C3RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.15 NppStatus nppiMul_16u_AC4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.16 NppStatus nppiMul_16u_AC4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel with unmodified alpha image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.17 NppStatus nppiMul_16u_C1IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.18 NppStatus nppiMul_16u_C1RSfs (const Npp16u * *pSrc1*, const Npp16u * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.19 NppStatus nppiMul_16u_C3IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.20 NppStatus nppiMul_16u_C3RSfs (const Npp16u * *pSrc1*, const Npp16u * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.21 NppStatus nppiMul_16u_C4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.22 NppStatus nppiMul_16u_C4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.23 NppStatus nppiMul_32f_AC4IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.24 NppStatus nppiMul_32f_AC4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image multiplication.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.25 NppStatus nppiMul_32f_C1IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.26 NppStatus nppiMul_32f_C1R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image multiplication.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.27 NppStatus nppiMul_32f_C3IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image multiplication.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.28 NppStatus nppiMul_32f_C3R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image multiplication.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.29 NppStatus nppiMul_32f_C4IR (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.30 NppStatus nppiMul_32f_C4R (const Npp32f **pSrc1*, int *nSrc1Step*, const Npp32f **pSrc2*, int *nSrc2Step*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image multiplication.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.31 NppStatus nppiMul_32fc_AC4IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.32 NppStatus nppiMul_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiplication.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.33 NppStatus nppiMul_32fc_C1IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.34 NppStatus nppiMul_32fc_C1R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.35 NppStatus nppiMul_32fc_C3IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.36 NppStatus nppiMul_32fc_C3R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.37 NppStatus nppiMul_32fc_C4IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image multiplication.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.38 NppStatus nppiMul_32fc_C4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image multiplication.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.39 NppStatus nppiMul_32s_C1IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image multiplication, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.40 NppStatus nppiMul_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

1 channel 32-bit image multiplication. Multiply corresponding pixels in ROI.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.41 NppStatus nppiMul_32s_C1RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.42 NppStatus nppiMul_32s_C3IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

- Image Data Related Error Codes, ROI Related Error Codes

7.17.2.43 NppStatus nppiMul_32s_C3RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

- Image Data Related Error Codes, ROI Related Error Codes

7.17.2.44 NppStatus nppiMul_32sc_AC4IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.45 NppStatus nppiMul_32sc_AC4RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.46 NppStatus nppiMul_32sc_C1IRSfs (const Npp32sc * pSrc, int nSrcStep, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.47 NppStatus nppiMul_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.48 NppStatus nppiMul_32sc_C3IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.49 NppStatus nppiMul_32sc_C3RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.50 NppStatus nppiMul_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.51 NppStatus nppiMul_8u_AC4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.52 NppStatus nppiMul_8u_C1IRSfs (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.53 NppStatus nppiMul_8u_C1RSfs (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **pSrc2*, int *nSrc2Step*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.54 NppStatus nppiMul_8u_C3IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.55 NppStatus nppiMul_8u_C3RSFs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.17.2.56 NppStatus nppiMul_8u_C4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image multiplication, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.17.2.57 NppStatus nppiMul_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 8-bit unsigned char channel image multiplication, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18 MulScale

Pixel by pixel multiplies each pixel of two images then scales the result by the maximum value for the data bit width.

Functions

- **NppStatus nppiMulScale_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C3IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel with unmodified alpha image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_AC4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel with unmodified alpha in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_8u_C4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C3R** (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)

Three 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C3IR** (const **Npp16u** ***pSrc**, int **nSrcStep**, **Npp16u** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)

One 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_AC4R** (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)

Four 16-bit unsigned short channel with unmodified alpha image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_AC4IR** (const **Npp16u** ***pSrc**, int **nSrcStep**, **Npp16u** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)

Four 16-bit unsigned short channel with unmodified alpha in place image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C4R** (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)

Four 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

- **NppStatus nppiMulScale_16u_C4IR** (const **Npp16u** ***pSrc**, int **nSrcStep**, **Npp16u** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)

Four 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

7.18.1 Detailed Description

Pixel by pixel multiplies each pixel of two images then scales the result by the maximum value for the data bit width.

7.18.2 Function Documentation

7.18.2.1 NppStatus nppiMulScale_16u_AC4IR (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel with unmodified alpha in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.2 NppStatus nppiMulScale_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel with unmodified alpha image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.3 NppStatus nppiMulScale_16u_C1IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.4 NppStatus nppiMulScale_16u_C1R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.5 NppStatus nppiMulScale_16u_C3IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.6 NppStatus nppiMulScale_16u_C3R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.7 NppStatus nppiMulScale_16u_C4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.8 NppStatus nppiMulScale_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.9 NppStatus nppiMulScale_8u_AC4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel with unmodified alpha in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.10 NppStatus nppiMulScale_8u_AC4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel with unmodified alpha image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.11 NppStatus nppiMulScale_8u_C1IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.12 NppStatus nppiMulScale_8u_C1R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.13 NppStatus nppiMulScale_8u_C3IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.18.2.14 NppStatus nppiMulScale_8u_C3R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.15 NppStatus nppiMulScale_8u_C4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.18.2.16 NppStatus nppiMulScale_8u_C4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image multiplication then scale by maximum value for pixel bit width.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19 Sub

Pixel by pixel subtraction of two images.

Functions

- **NppStatus nppiSub_8u_C1RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C1IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C3RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C3IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_AC4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_AC4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_8u_C4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C1RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16u_C1IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_C1IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_C3IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_16sc_AC4IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.
- **NppStatus nppiSub_32s_C1IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C3IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C4RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32s_C4IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Four 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32sc_C1IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSub_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32sc_C3IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32sc_AC4IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSub_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image subtraction.

- **NppStatus nppiSub_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image subtraction.

- **NppStatus nppiSub_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image subtraction.

- **NppStatus nppiSub_32f_C3IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image subtraction.

- **NppStatus nppiSub_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image subtraction.

- **NppStatus nppiSub_32f_AC4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image subtraction.

- **NppStatus nppiSub_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image subtraction.

- **NppStatus nppiSub_32f_C4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image subtraction.

- **NppStatus nppiSub_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.

- **NppStatus nppiSub_32fc_C1IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.
- **NppStatus nppiSub_32fc_C3R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.
- **NppStatus nppiSub_32fc_C3IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.
- **NppStatus nppiSub_32fc_AC4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtraction.
- **NppStatus nppiSub_32fc_AC4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtraction.
- **NppStatus nppiSub_32fc_C4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.
- **NppStatus nppiSub_32fc_C4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)
Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.

7.19.1 Detailed Description

Pixel by pixel subtraction of two images.

7.19.2 Function Documentation

7.19.2.1 NppStatus nppiSub_16s_AC4IRSfs (const **Npp16s** ***pSrc**, int **nSrcStep**, **Npp16s** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**, int **nScaleFactor**)

Four 16-bit signed short channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc** Source-Image Pointer.
- nSrcStep** Source-Image Line Step.
- pSrcDst** In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.2 NppStatus nppiSub_16s_AC4RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short channel with unmodified alpha image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.3 NppStatus nppiSub_16s_C1IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.4 NppStatus nppiSub_16s_C1RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.5 NppStatus nppiSub_16s_C3IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.6 NppStatus nppiSub_16s_C3RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.7 NppStatus nppiSub_16s_C4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.8 NppStatus nppiSub_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.9 NppStatus nppiSub_16sc_AC4IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.10 NppStatus nppiSub_16sc_AC4RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.11 NppStatus nppiSub_16sc_C1IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.12 NppStatus nppiSub_16sc_C1RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.13 NppStatus nppiSub_16sc_C3IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.14 NppStatus nppiSub_16sc_C3RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.15 NppStatus nppiSub_16u_AC4IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.16 NppStatus nppiSub_16u_AC4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.17 NppStatus nppiSub_16u_C1IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.18 NppStatus nppiSub_16u_C1RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.19 NppStatus nppiSub_16u_C3IRSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.20 NppStatus nppiSub_16u_C3RSfs (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.21 NppStatus nppiSub_16u_C4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.22 NppStatus nppiSub_16u_C4RSfs (const Npp16u * *pSrc1*, const Npp16u * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.23 NppStatus nppiSub_32f_AC4IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image subtraction.

Parameters:

- pSrc* Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.24 NppStatus nppiSub_32f_AC4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image subtraction.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.25 NppStatus nppiSub_32f_C1IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.26 NppStatus nppiSub_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image subtraction.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.27 NppStatus nppiSub_32f_C3IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.28 NppStatus nppiSub_32f_C3R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image subtraction.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.29 NppStatus nppiSub_32f_C4IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.30 NppStatus nppiSub_32f_C4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image subtraction.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.31 NppStatus nppiSub_32fc_AC4IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtraction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.32 NppStatus nppiSub_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtraction.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.33 NppStatus nppiSub_32fc_C1IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.34 NppStatus nppiSub_32fc_C1R (const Npp32fc **pSrc1*, int *nSrc1Step*, const Npp32fc **pSrc2*, int *nSrc2Step*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.35 NppStatus nppiSub_32fc_C3IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.36 NppStatus nppiSub_32fc_C3R (const Npp32fc **pSrc1*, int *nSrc1Step*, const Npp32fc **pSrc2*, int *nSrc2Step*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.37 NppStatus nppiSub_32fc_C4IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image subtraction.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.38 NppStatus nppiSub_32fc_C4R (const Npp32fc **pSrc1*, int *nSrc1Step*, const Npp32fc **pSrc2*, int *nSrc2Step*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image subtraction.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.39 NppStatus nppiSub_32s_C1IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.40 NppStatus nppiSub_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

32-bit image subtraction. Subtract pSrc1's pixels from corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.41 NppStatus nppiSub_32s_C1RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.42 NppStatus nppiSub_32s_C3IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.43 NppStatus nppiSub_32s_C3RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.44 NppStatus nppiSub_32s_C4IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.45 NppStatus nppiSub_32s_C4RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.46 NppStatus nppiSub_32sc_AC4IRSfs (const Npp32sc * pSrc, int nSrcStep, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.47 NppStatus nppiSub_32sc_AC4RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.48 NppStatus nppiSub_32sc_C1IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.49 NppStatus nppiSub_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.50 NppStatus nppiSub_32sc_C3IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.51 NppStatus nppiSub_32sc_C3RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.52 NppStatus nppiSub_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.19.2.53 NppStatus nppiSub_8u_AC4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.54 NppStatus nppiSub_8u_C1IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.55 NppStatus nppiSub_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.56 NppStatus nppiSub_8u_C3IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.57 NppStatus nppiSub_8u_C3RSFs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image subtraction, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.58 NppStatus nppiSub_8u_C4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.19.2.59 NppStatus nppiSub_8u_C4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image subtraction, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20 Div

Pixel by pixel division of two images.

Functions

- **NppStatus nppiDiv_8u_C1RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C1IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C3RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C3IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_AC4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_AC4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C4RSfs** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_8u_C4IRSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16u_C1RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16u_C1IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16sc_C1RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16sc_C1IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16sc_C3RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16sc_C3IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16sc_AC4RSfs** (const **Npp16sc** *pSrc1, int nSrc1Step, const **Npp16sc** *pSrc2, int nSrc2Step, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_16sc_AC4IRSfs** (const **Npp16sc** *pSrc, int nSrcStep, **Npp16sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_32s_C1RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

- **NppStatus nppiDiv_32s_C1IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32s_C3RSfs** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32s_C3IRSfs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_C1RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_C1IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_C3RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_C3IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_AC4RSfs** (const **Npp32sc** *pSrc1, int nSrc1Step, const **Npp32sc** *pSrc2, int nSrc2Step, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32sc_AC4IRSfs** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image division.
- **NppStatus nppiDiv_32f_C1IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image division.
- **NppStatus nppiDiv_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image division.
- **NppStatus nppiDiv_32f_C3IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image division.
- **NppStatus nppiDiv_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha image division.
- **NppStatus nppiDiv_32f_AC4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel with unmodified alpha in place image division.
- **NppStatus nppiDiv_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image division.
- **NppStatus nppiDiv_32f_C4IR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel in place image division.
- **NppStatus nppiDiv_32fc_C1R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.
- **NppStatus nppiDiv_32fc_C1IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.
- **NppStatus nppiDiv_32fc_C3R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.
- **NppStatus nppiDiv_32fc_C3IR** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.
- **NppStatus nppiDiv_32fc_AC4R** (const **Npp32fc** *pSrc1, int nSrc1Step, const **Npp32fc** *pSrc2, int nSrc2Step, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division.

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division.

- **NppStatus nppiDiv_32fc_AC4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image division.

- **NppStatus nppiDiv_32fc_C4R** (const **Npp32fc** ***pSrc1**, int **nSrc1Step**, const **Npp32fc** ***pSrc2**, int **nSrc2Step**, **Npp32fc** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.

- **NppStatus nppiDiv_32fc_C4IR** (const **Npp32fc** ***pSrc**, int **nSrcStep**, **Npp32fc** ***pSrcDst**, int **nSrcDstStep**, **NppiSize** **oSizeROI**)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.

7.20.1 Detailed Description

Pixel by pixel division of two images.

7.20.2 Function Documentation

7.20.2.1 NppStatus nppiDiv_16s_AC4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc** Source-Image Pointer.
- nSrcStep** Source-Image Line Step.
- pSrcDst** In-Place Image Pointer.
- nSrcDstStep** In-Place-Image Line Step.
- oSizeROI** Region-of-Interest (ROI).
- nScaleFactor** Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.2 NppStatus nppiDiv_16s_AC4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc1** Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.3 NppStatus nppiDiv_16s_C1IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.4 NppStatus nppiDiv_16s_C1RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.5 NppStatus nppiDiv_16s_C3IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.6 NppStatus nppiDiv_16s_C3RSFs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.7 NppStatus nppiDiv_16s_C4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.8 NppStatus nppiDiv_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.9 NppStatus nppiDiv_16sc_AC4IRSfs (const Npp16sc * pSrc, int nSrcStep, Npp16sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.10 NppStatus nppiDiv_16sc_AC4RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel with unmodified alpha image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.11 NppStatus nppiDiv_16sc_C1IRSfs (const Npp16sc * pSrc, int nSrcStep, Npp16sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.12 NppStatus nppiDiv_16sc_C1RSfs (const Npp16sc * pSrc1, int nSrc1Step, const Npp16sc * pSrc2, int nSrc2Step, Npp16sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.13 NppStatus nppiDiv_16sc_C3IRSfs (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.14 NppStatus nppiDiv_16sc_C3RSfs (const Npp16sc * *pSrc1*, int *nSrc1Step*, const Npp16sc * *pSrc2*, int *nSrc2Step*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short complex number (16-bit real, 16-bit imaginary) channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.15 NppStatus nppiDiv_16u_AC4IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.16 NppStatus nppiDiv_16u_AC4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.17 NppStatus nppiDiv_16u_C1IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.18 NppStatus nppiDiv_16u_C1RSfs (const Npp16u * *pSrc1*, const Npp16u * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.19 NppStatus nppiDiv_16u_C3IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.20 NppStatus nppiDiv_16u_C3RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.21 NppStatus nppiDiv_16u_C4IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.22 NppStatus nppiDiv_16u_C4RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image division, scale by $2^{\wedge}(-\text{nScaleFactor})$, then clamp to saturated value.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.23 NppStatus nppiDiv_32f_AC4IR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha in place image division.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.24 NppStatus nppiDiv_32f_AC4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel with unmodified alpha image division.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.25 NppStatus nppiDiv_32f_C1IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image division.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.26 NppStatus nppiDiv_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image division.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.27 NppStatus nppiDiv_32f_C3IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.28 NppStatus nppiDiv_32f_C3R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.29 NppStatus nppiDiv_32f_C4IR (const Npp32f * pSrc, int nSrcStep, Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.30 NppStatus nppiDiv_32f_C4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.31 NppStatus nppiDiv_32fc_AC4IR (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.32 NppStatus nppiDiv_32fc_AC4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.33 NppStatus nppiDiv_32fc_C1IR (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.34 NppStatus nppiDiv_32fc_C1R (const Npp32fc **pSrc1*, int *nSrc1Step*, const Npp32fc **pSrc2*, int *nSrc2Step*, Npp32fc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.20.2.35 NppStatus nppiDiv_32fc_C3IR (const Npp32fc * pSrc, int nSrcStep, Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.36 NppStatus nppiDiv_32fc_C3R (const Npp32fc * pSrc1, int nSrc1Step, const Npp32fc * pSrc2, int nSrc2Step, Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.37 NppStatus nppiDiv_32fc_C4IR (const Npp32fc * pSrc, int nSrcStep, Npp32fc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel in place image division.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.38 NppStatus nppiDiv_32fc_C4R (const Npp32fc * *pSrc1*, int *nSrc1Step*, const Npp32fc * *pSrc2*, int *nSrc2Step*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point complex number (32-bit real, 32-bit imaginary) channel image division.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.39 NppStatus nppiDiv_32s_C1IRSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.40 NppStatus nppiDiv_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Note: This function is to be deprecated in future NPP releases, use the function above with a scale factor of 0 instead.

32-bit image division. Divide pixels in pSrc2 by pSrc1's pixels.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.41 NppStatus nppiDiv_32s_C1RSfs (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.42 NppStatus nppiDiv_32s_C3IRSfs (const Npp32s * pSrc, int nSrcStep, Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.43 NppStatus nppiDiv_32s_C3RSfs (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 32-bit signed integer channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.44 NppStatus nppiDiv_32sc_AC4IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.45 NppStatus nppiDiv_32sc_AC4RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.46 NppStatus nppiDiv_32sc_C1IRSfs (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.47 NppStatus nppiDiv_32sc_C1RSfs (const Npp32sc * *pSrc1*, int *nSrc1Step*, const Npp32sc * *pSrc2*, int *nSrc2Step*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.48 NppStatus nppiDiv_32sc_C3IRSfs (const Npp32sc * pSrc, int nSrcStep, Npp32sc * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.49 NppStatus nppiDiv_32sc_C3RSfs (const Npp32sc * pSrc1, int nSrc1Step, const Npp32sc * pSrc2, int nSrc2Step, Npp32sc * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 32-bit signed integer complex number (32-bit real, 32-bit imaginary) channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.50 NppStatus nppiDiv_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.51 NppStatus nppiDiv_8u_AC4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel with unmodified alpha image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.52 NppStatus nppiDiv_8u_C1IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.53 NppStatus nppiDiv_8u_C1RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.54 NppStatus nppiDiv_8u_C3IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.55 NppStatus nppiDiv_8u_C3RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.56 NppStatus nppiDiv_8u_C4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.20.2.57 NppStatus nppiDiv_8u_C4RSfs (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.21 Div_Round

Pixel by pixel division of two images using result rounding modes.

Functions

- `NppStatus nppiDiv_Round_8u_C1RSfs` (const `Npp8u *pSrc1`, int `nSrc1Step`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

One 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C1IRSfs` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

One 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C3RSfs` (const `Npp8u *pSrc1`, int `nSrc1Step`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Three 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C3IRSfs` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Three 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_AC4RSfs` (const `Npp8u *pSrc1`, int `nSrc1Step`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Four 8-bit unsigned char channel image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_AC4IRSfs` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Four 8-bit unsigned char channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C4RSfs` (const `Npp8u *pSrc1`, int `nSrc1Step`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Four 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_8u_C4IRSfs` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

Four 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- `NppStatus nppiDiv_Round_16u_C1RSfs` (const `Npp16u *pSrc1`, int `nSrc1Step`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppRoundMode rndMode`, int `nScaleFactor`)

One 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C1IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

One 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C3RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Three 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C3IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Three 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_AC4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit unsigned short channel image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_AC4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit unsigned short channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C4RSfs** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16u_C4IRSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16s_C1RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

One 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16s_C1IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

One 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiDiv_Round_16s_C3RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Three 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_C3IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Three 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_AC4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit signed short channel image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_AC4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit signed short channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_C4RSfs** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiDiv_Round_16s_C4IRSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, **NppRoundMode** rndMode, int nScaleFactor)

Four 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

7.21.1 Detailed Description

Pixel by pixel division of two images using result rounding modes.

7.21.2 Function Documentation

7.21.2.1 NppStatus nppiDiv_Round_16s_AC4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit signed short channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc** Source-Image Pointer.
- nSrcStep** Source-Image Line Step.
- pSrcDst** In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.21.2.2 NppStatus nppiDiv_Round_16s_AC4RSfs (const Npp16s * pSrc1, int nSrc1Step, const
Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI,
NppRoundMode rndMode, int nScaleFactor)**

Four 16-bit signed short channel image division with unmodified alpha, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.21.2.3 NppStatus nppiDiv_Round_16s_C1IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s
* pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int
nScaleFactor)**

One 16-bit signed short channel in place image division, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.21.2.4 NppStatus nppiDiv_Round_16s_C1RSfs (const Npp16s * *pSrc1*, int *nSrc1Step*, const
Npp16s * *pSrc2*, int *nSrc2Step*, Npp16s * *pDst*, int *nDstStep*, NppSize *oSizeROI*,
NppRoundMode rndMode, int *nScaleFactor*)**

One 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.21.2.5 NppStatus nppiDiv_Round_16s_C3IRSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s
* *pSrcDst*, int *nSrcDstStep*, NppSize *oSizeROI*, NppRoundMode *rndMode*, int
nScaleFactor)**

Three 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-
FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.6 NppStatus nppiDiv_Round_16s_C3RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Three 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.7 NppStatus nppiDiv_Round_16s_C4IRSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit signed short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.8 NppStatus nppiDiv_Round_16s_C4RSfs (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit signed short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_- FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.9 NppStatus nppiDiv_Round_16u_AC4IRSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit unsigned short channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_- FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.10 NppStatus nppiDiv_Round_16u_AC4RSfs (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 16-bit unsigned short channel image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.11 NppStatus nppiDiv_Round_16u_C1IRSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.12 NppStatus nppiDiv_Round_16u_C1RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

One 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.13 NppStatus nppiDiv_Round_16u_C3IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.14 NppStatus nppiDiv_Round_16u_C3RSfs (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Three 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.15 NppStatus nppiDiv_Round_16u_C4IRSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 16-bit unsigned short channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.16 NppStatus nppiDiv_Round_16u_C4RSfs (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 16-bit unsigned short channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.21.2.17 NppStatus nppiDiv_Round_8u_AC4IRSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, NppRoundMode rndMode, int nScaleFactor)

Four 8-bit unsigned char channel in place image division with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.21.2.18 NppStatus nppiDiv_Round_8u_AC4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 8-bit unsigned char channel image division with unmodified alpha, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.19 NppStatus nppiDiv_Round_8u_C1IRSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

One 8-bit unsigned char channel in place image division, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.20 NppStatus nppiDiv_Round_8u_C1RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

One 8-bit unsigned char channel image division, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_- FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.21 NppStatus nppiDiv_Round_8u_C3IRSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Three 8-bit unsigned char channel in place image division, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_- FINANCIAL)

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.22 NppStatus nppiDiv_Round_8u_C3RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Three 8-bit unsigned char channel image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.23 NppStatus nppiDiv_Round_8u_C4IRSfs (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 8-bit unsigned char channel in place image division, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.21.2.24 NppStatus nppiDiv_Round_8u_C4RSfs (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *rndMode*, int *nScaleFactor*)

Four 8-bit unsigned char channel image division, scale by $2^{\text{-nScaleFactor}}$, then clamp to saturated value.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rndMode Result Rounding mode to be used (NPP_RND_ZERO, NPP_RND_NEAR, or NP_RND_-FINANCIAL)
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.22 Abs

Absolute value of each pixel value in an image.

Functions

- **NppStatus nppiAbs_16s_C1R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit signed short channel image absolute value.
- **NppStatus nppiAbs_16s_C1IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit signed short channel in place image absolute value.
- **NppStatus nppiAbs_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit signed short channel image absolute value.
- **NppStatus nppiAbs_16s_C3IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 16-bit signed short channel in place image absolute value.
- **NppStatus nppiAbs_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit signed short channel image absolute value with unmodified alpha.
- **NppStatus nppiAbs_16s_AC4IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit signed short channel in place image absolute value with unmodified alpha.
- **NppStatus nppiAbs_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit signed short channel image absolute value.
- **NppStatus nppiAbs_16s_C4IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit signed short channel in place image absolute value.
- **NppStatus nppiAbs_32f_C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel image absolute value.
- **NppStatus nppiAbs_32f_C1IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit floating point channel in place image absolute value.
- **NppStatus nppiAbs_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel image absolute value.
- **NppStatus nppiAbs_32f_C3IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit floating point channel in place image absolute value.
- **NppStatus nppiAbs_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit floating point channel image absolute value.

Four 32-bit floating point channel image absolute value with unmodified alpha.

- **NppStatus nppiAbs_32f_AC4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)**
Four 32-bit floating point channel in place image absolute value with unmodified alpha.
- **NppStatus nppiAbs_32f_C4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)**
Four 32-bit floating point channel image absolute value.
- **NppStatus nppiAbs_32f_C4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)**
Four 32-bit floating point channel in place image absolute value.

7.22.1 Detailed Description

Absolute value of each pixel value in an image.

7.22.2 Function Documentation

7.22.2.1 NppStatus nppiAbs_16s_AC4IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 16-bit signed short channel in place image absolute value with unmodified alpha.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.2 NppStatus nppiAbs_16s_AC4R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit signed short channel image absolute value with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.3 NppStatus nppiAbs_16s_C1IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 16-bit signed short channel in place image absolute value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.4 NppStatus nppiAbs_16s_C1R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

One 16-bit signed short channel image absolute value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.5 NppStatus nppiAbs_16s_C3IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 16-bit signed short channel in place image absolute value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.6 NppStatus nppiAbs_16s_C3R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit signed short channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.7 NppStatus nppiAbs_16s_C4IR (Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit signed short channel in place image absolute value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.8 NppStatus nppiAbs_16s_C4R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit signed short channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.9 NppStatus nppiAbs_32f_AC4IR (Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image absolute value with unmodified alpha.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.10 NppStatus nppiAbs_32f_AC4R (const Npp32f **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image absolute value with unmodified alpha.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.11 NppStatus nppiAbs_32f_C1IR (Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image absolute value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.12 NppStatus nppiAbs_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.13 NppStatus nppiAbs_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image absolute value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.14 NppStatus nppiAbs_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.15 NppStatus nppiAbs_32f_C4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image absolute value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.22.2.16 NppStatus nppiAbs_32f_C4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image absolute value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23 AbsDiff

Pixel by pixel absolute difference between two images.

Functions

- `NppStatus nppiAbsDiff_8u_C1R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`

One 8-bit unsigned char channel absolute difference of image1 minus image2.
- `NppStatus nppiAbsDiff_8u_C3R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`

Three 8-bit unsigned char channels absolute difference of image1 minus image2.
- `NppStatus nppiAbsDiff_8u_C4R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`

Four 8-bit unsigned char channels absolute difference of image1 minus image2.
- `NppStatus nppiAbsDiff_16u_C1R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI)`

One 16-bit unsigned short channel absolute difference of image1 minus image2.
- `NppStatus nppiAbsDiff_32f_C1R (const Npp32f *pSrc1, int nSrc1Step, const Npp32f *pSrc2, int nSrc2Step, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`

One 32-bit floating point channel absolute difference of image1 minus image2.

7.23.1 Detailed Description

Pixel by pixel absolute difference between two images.

7.23.2 Function Documentation

7.23.2.1 `NppStatus nppiAbsDiff_16u_C1R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)`

One 16-bit unsigned short channel absolute difference of image1 minus image2.

Parameters:

- `pSrc1` Source-Image Pointer.
- `nSrc1Step` Source-Image Line Step.
- `pSrc2` Source-Image Pointer.
- `nSrc2Step` Source-Image Line Step.
- `pDst` Destination-Image Pointer.
- `nDstStep` Destination-Image Line Step.
- `oSizeROI` Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.2 NppStatus nppiAbsDiff_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel absolute difference of image1 minus image2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.3 NppStatus nppiAbsDiff_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel absolute difference of image1 minus image2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.4 NppStatus nppiAbsDiff_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channels absolute difference of image1 minus image2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.23.2.5 NppStatus nppiAbsDiff_8u_C4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channels absolute difference of image1 minus image2.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24 Sqr

Square each pixel in an image.

Functions

- **NppStatus nppiSqr_8u_C1RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C1IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C3RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C3IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_AC4RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_AC4IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C4RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_8u_C4IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_16u_C1RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqr_16u_C1IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_C3RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_C3IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_AC4RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_AC4IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_C4RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16u_C4IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_C1RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_C1IRSfs** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_C3RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqr_16s_C3IRSfs** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- [NppStatus nppiSqr_16s_AC4RSfs](#) (const [Npp16s](#) *pSrc, int nSrcStep, [Npp16s](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- [NppStatus nppiSqr_16s_AC4IRSfs](#) ([Npp16s](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- [NppStatus nppiSqr_16s_C4RSfs](#) (const [Npp16s](#) *pSrc, int nSrcStep, [Npp16s](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- [NppStatus nppiSqr_16s_C4IRSfs](#) ([Npp16s](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- [NppStatus nppiSqr_32f_C1R](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel image squared.
- [NppStatus nppiSqr_32f_C1IR](#) ([Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

One 32-bit floating point channel in place image squared.
- [NppStatus nppiSqr_32f_C3R](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three 32-bit floating point channel image squared.
- [NppStatus nppiSqr_32f_C3IR](#) ([Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Three 32-bit floating point channel in place image squared.
- [NppStatus nppiSqr_32f_AC4R](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel image squared with unmodified alpha.
- [NppStatus nppiSqr_32f_AC4IR](#) ([Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel in place image squared with unmodified alpha.
- [NppStatus nppiSqr_32f_C4R](#) (const [Npp32f](#) *pSrc, int nSrcStep, [Npp32f](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel image squared.
- [NppStatus nppiSqr_32f_C4IR](#) ([Npp32f](#) *pSrcDst, int nSrcDstStep, [NppiSize](#) oSizeROI)

Four 32-bit floating point channel in place image squared.

7.24.1 Detailed Description

Square each pixel in an image.

7.24.2 Function Documentation

7.24.2.1 NppStatus nppiSqr_16s_AC4IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.2 NppStatus nppiSqr_16s_AC4RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.3 NppStatus nppiSqr_16s_C1IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.4 NppStatus nppiSqr_16s_C1RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.5 NppStatus nppiSqr_16s_C3IRSfs (Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.6 NppStatus nppiSqr_16s_C3RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.7 NppStatus nppiSqr_16s_C4IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.8 NppStatus nppiSqr_16s_C4RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.9 NppStatus nppiSqr_16u_AC4IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.10 NppStatus nppiSqr_16u_AC4RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image squared with unmodified alpha, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.11 NppStatus nppiSqr_16u_C1IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image squared, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.12 NppStatus nppiSqr_16u_C1RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image squared, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.13 NppStatus nppiSqr_16u_C3IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.14 NppStatus nppiSqr_16u_C3RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.15 NppStatus nppiSqr_16u_C4IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.16 NppStatus nppiSqr_16u_C4RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.17 NppStatus nppiSqr_32f_AC4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image squared with unmodified alpha.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.18 NppStatus nppiSqr_32f_AC4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image squared with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.19 NppStatus nppiSqr_32f_C1IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image squared.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.20 NppStatus nppiSqr_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image squared.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.21 NppStatus nppiSqr_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image squared.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.22 NppStatus nppiSqr_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image squared.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.23 NppStatus nppiSqr_32f_C4IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel in place image squared.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.24 NppStatus nppiSqr_32f_C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit floating point channel image squared.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.25 NppStatus nppiSqr_8u_AC4IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.26 NppStatus nppiSqr_8u_AC4RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image squared with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.27 NppStatus nppiSqr_8u_C1IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.28 NppStatus nppiSqr_8u_C1RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.29 NppStatus nppiSqr_8u_C3IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.30 NppStatus nppiSqr_8u_C3RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image squared, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.24.2.31 NppStatus nppiSqr_8u_C4IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image squared, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.24.2.32 NppStatus nppiSqr_8u_C4RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image squared, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25 Sqrt

Pixel by pixel square root of each pixel in an image.

Functions

- `NppStatus nppiSqrt_8u_C1RSfs (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_C1IRSfs (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 8-bit unsigned char channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_C3RSfs (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_C3IRSfs (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 8-bit unsigned char channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_AC4RSfs (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_8u_AC4IRSfs (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
Four 8-bit unsigned char channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_16u_C1RSfs (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_16u_C1IRSfs (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)`
One 16-bit unsigned short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- `NppStatus nppiSqrt_16u_C3RSfs (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)`
Three 16-bit unsigned short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiSqrt_16u_C3IRSfs** (`Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit unsigned short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16u_AC4RSfs** (`const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
Four 16-bit unsigned short channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16u_AC4IRSfs** (`Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Four 16-bit unsigned short channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_C1RSfs** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
One 16-bit signed short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_C1IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
One 16-bit signed short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_C3RSfs** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit signed short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_C3IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit signed short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_AC4RSfs** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
Four 16-bit signed short channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_16s_AC4IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Four 16-bit signed short channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiSqrt_32f_C1R** (`const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI`)
One 32-bit floating point channel image square root.
- **NppStatus nppiSqrt_32f_C1IR** (`Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI`)
One 32-bit floating point channel in place image square root.

- [NppStatus nppiSqrt_32f_C3R](#) (const [Npp32f](#) *[pSrc](#), int [nSrcStep](#), [Npp32f](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Three 32-bit floating point channel image square root.
- [NppStatus nppiSqrt_32f_C3IR](#) ([Npp32f](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Three 32-bit floating point channel in place image square root.
- [NppStatus nppiSqrt_32f_AC4R](#) (const [Npp32f](#) *[pSrc](#), int [nSrcStep](#), [Npp32f](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point channel image square root with unmodified alpha.
- [NppStatus nppiSqrt_32f_AC4IR](#) ([Npp32f](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point channel in place image square root with unmodified alpha.
- [NppStatus nppiSqrt_32f_C4R](#) (const [Npp32f](#) *[pSrc](#), int [nSrcStep](#), [Npp32f](#) *[pDst](#), int [nDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point channel image square root.
- [NppStatus nppiSqrt_32f_C4IR](#) ([Npp32f](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#))
Four 32-bit floating point channel in place image square root.

7.25.1 Detailed Description

Pixel by pixel square root of each pixel in an image.

7.25.2 Function Documentation

7.25.2.1 [NppStatus nppiSqrt_16s_AC4IRSfs](#) ([Npp16s](#) *[pSrcDst](#), int [nSrcDstStep](#), [NppiSize](#) [oSizeROI](#), int [nScaleFactor](#))

Four 16-bit signed short channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- [pSrcDst](#) In-Place Image Pointer.
- [nSrcDstStep](#) In-Place-Image Line Step.
- [oSizeROI](#) Region-of-Interest (ROI).
- [nScaleFactor](#) Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.2 NppStatus nppiSqrt_16s_AC4RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit signed short channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.3 NppStatus nppiSqrt_16s_C1IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.4 NppStatus nppiSqrt_16s_C1RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.5 NppStatus nppiSqrt_16s_C3IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.6 NppStatus nppiSqrt_16s_C3RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.7 NppStatus nppiSqrt_16u_AC4IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 16-bit unsigned short channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.8 NppStatus nppiSqrt_16u_AC4RSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Four 16-bit unsigned short channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.9 NppStatus nppiSqrt_16u_C1IRSfs (Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.10 NppStatus nppiSqrt_16u_C1RSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit unsigned short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.11 NppStatus nppiSqrt_16u_C3IRSfs (Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.12 NppStatus nppiSqrt_16u_C3RSfs (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.13 NppStatus nppiSqrt_32f_AC4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image square root with unmodified alpha.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.14 NppStatus nppiSqrt_32f_AC4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image square root with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.15 NppStatus nppiSqrt_32f_C1IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image square root.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.16 NppStatus nppiSqrt_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image square root.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.17 NppStatus nppiSqrt_32f_C3IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel in place image square root.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.18 NppStatus nppiSqrt_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit floating point channel image square root.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.19 NppStatus nppiSqrt_32f_C4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel in place image square root.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.20 NppStatus nppiSqrt_32f_C4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four 32-bit floating point channel image square root.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.21 NppStatus nppiSqrt_8u_AC4IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel in place image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.22 NppStatus nppiSqrt_8u_AC4RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Four 8-bit unsigned char channel image square root with unmodified alpha, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.23 NppStatus nppiSqrt_8u_C1IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.25.2.24 NppStatus nppiSqrt_8u_C1RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.25 NppStatus nppiSqrt_8u_C3IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.25.2.26 NppStatus nppiSqrt_8u_C3RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image square root, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.26 Ln

Pixel by pixel natural logarithm of each pixel in an image.

Functions

- **NppStatus nppiLn_8u_C1RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_8u_C1IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_8u_C3RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_8u_C3IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16u_C1RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16u_C1IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16u_C3RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16u_C3IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16s_C1RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)

One 16-bit signed short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiLn_16s_C1IRSfs** (*Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor*)
One 16-bit signed short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16s_C3RSfs** (*const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor*)
Three 16-bit signed short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_16s_C3IRSfs** (*Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor*)
Three 16-bit signed short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiLn_32f_C1R** (*const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI*)
One 32-bit floating point channel image natural logarithm.
- **NppStatus nppiLn_32f_C1IR** (*Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI*)
One 32-bit floating point channel in place image natural logarithm.
- **NppStatus nppiLn_32f_C3R** (*const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI*)
Three 32-bit floating point channel image natural logarithm.
- **NppStatus nppiLn_32f_C3IR** (*Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI*)
Three 32-bit floating point channel in place image natural logarithm.

7.26.1 Detailed Description

Pixel by pixel natural logarithm of each pixel in an image.

7.26.2 Function Documentation

7.26.2.1 NppStatus nppiLn_16s_C1IRSfs (*Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor*)

One 16-bit signed short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.2 NppStatus nppiLn_16s_C1RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 16-bit signed short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.3 NppStatus nppiLn_16s_C3IRSfs (Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.4 NppStatus nppiLn_16s_C3RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit signed short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.5 NppStatus nppiLn_16u_C1IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.26.2.6 NppStatus nppiLn_16u_C1RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.26.2.7 NppStatus nppiLn_16u_C3IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.26.2.8 NppStatus nppiLn_16u_C3RSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 16-bit unsigned short channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.9 NppStatus nppiLn_32f_C1IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel in place image natural logarithm.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.10 NppStatus nppiLn_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit floating point channel image natural logarithm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.11 NppStatus nppiLn_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image natural logarithm.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.12 NppStatus nppiLn_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image natural logarithm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.13 NppStatus nppiLn_8u_C1IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image natural logarithm, scale by $2^{\wedge}(-nScaleFactor)$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.14 NppStatus nppiLn_8u_C1RSfs (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

One 8-bit unsigned char channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.15 NppStatus nppiLn_8u_C3IRSfs (Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel in place image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.26.2.16 NppStatus nppiLn_8u_C3RSfs (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, int *nScaleFactor*)

Three 8-bit unsigned char channel image natural logarithm, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27 Exp

Exponential value of each pixel in an image.

Functions

- **NppStatus nppiExp_8u_C1RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 8-bit unsigned char channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_8u_C1IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 8-bit unsigned char channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_8u_C3RSfs** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 8-bit unsigned char channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_8u_C3IRSfs** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 8-bit unsigned char channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16u_C1RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16u_C1IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit unsigned short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16u_C3RSfs** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16u_C3IRSfs** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, int nScaleFactor)
Three 16-bit unsigned short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16s_C1RSfs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, int nScaleFactor)
One 16-bit signed short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

- **NppStatus nppiExp_16s_C1IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
One 16-bit signed short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16s_C3RSfs** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit signed short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_16s_C3IRSfs** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)
Three 16-bit signed short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.
- **NppStatus nppiExp_32f_C1R** (`const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI`)
One 32-bit floating point channel image exponential.
- **NppStatus nppiExp_32f_C1IR** (`Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI`)
One 32-bit floating point channel in place image exponential.
- **NppStatus nppiExp_32f_C3R** (`const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI`)
Three 32-bit floating point channel image exponential.
- **NppStatus nppiExp_32f_C3IR** (`Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI`)
Three 32-bit floating point channel in place image exponential.

7.27.1 Detailed Description

Exponential value of each pixel in an image.

7.27.2 Function Documentation

7.27.2.1 NppStatus nppiExp_16s_C1IRSfs (`Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor`)

One 16-bit signed short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst** In-Place Image Pointer.
- nSrcDstStep** In-Place-Image Line Step.
- oSizeROI** Region-of-Interest (ROI).
- nScaleFactor** Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.2 NppStatus nppiExp_16s_C1RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit signed short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.3 NppStatus nppiExp_16s_C3IRSfs (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.4 NppStatus nppiExp_16s_C3RSfs (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit signed short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.5 NppStatus nppiExp_16u_C1IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.27.2.6 NppStatus nppiExp_16u_C1RSfs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 16-bit unsigned short channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.27.2.7 NppStatus nppiExp_16u_C3IRSfs (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.27.2.8 NppStatus nppiExp_16u_C3RSFs (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 16-bit unsigned short channel image exponential, scale by $2^{-nScaleFactor}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.9 NppStatus nppiExp_32f_C1IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit floating point channel in place image exponential.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.10 NppStatus nppiExp_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit floating point channel image exponential.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.11 NppStatus nppiExp_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel in place image exponential.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.12 NppStatus nppiExp_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit floating point channel image exponential.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.13 NppStatus nppiExp_8u_C1IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nScaleFactor* Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.14 NppStatus nppiExp_8u_C1RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

One 8-bit unsigned char channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.15 NppStatus nppiExp_8u_C3IRSfs (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel in place image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.27.2.16 NppStatus nppiExp_8u_C3RSfs (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, int nScaleFactor)

Three 8-bit unsigned char channel image exponential, scale by $2^{(-nScaleFactor)}$, then clamp to saturated value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.28 Logical Operations

Modules

- [AndC](#)

Pixel by pixel logical and of an image with a constant.

- [OrC](#)

Pixel by pixel logical or of an image with a constant.

- [XorC](#)

Pixel by pixel logical exclusive or of an image with a constant.

- [RShiftC](#)

Pixel by pixel right shift of an image by a constant value.

- [LShiftC](#)

Pixel by pixel left shift of an image by a constant value.

- [And](#)

Pixel by pixel logical and of images.

- [Or](#)

Pixel by pixel logical or of images.

- [Xor](#)

Pixel by pixel logical exclusive or of images.

- [Not](#)

Pixel by pixel logical not of image.

7.29 AndC

Pixel by pixel logical and of an image with a constant.

Functions

- **NppStatus nppiAndC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel image logical and with constant.
- **NppStatus nppiAndC_8u_C1IR** (const **Npp8u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel in place image logical and with constant.
- **NppStatus nppiAndC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel image logical and with constant.
- **NppStatus nppiAndC_8u_C3IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel in place image logical and with constant.
- **NppStatus nppiAndC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_8u_AC4IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image logical and with constant.
- **NppStatus nppiAndC_8u_C4IR** (const **Npp8u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image logical and with constant.
- **NppStatus nppiAndC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel image logical and with constant.
- **NppStatus nppiAndC_16u_C1IR** (const **Npp16u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel in place image logical and with constant.
- **NppStatus nppiAndC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel image logical and with constant.

- **NppStatus nppiAndC_16u_C3IR** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel in place image logical and with constant.
- **NppStatus nppiAndC_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_16u_AC4IR** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image logical and with constant.
- **NppStatus nppiAndC_16u_C4IR** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image logical and with constant.
- **NppStatus nppiAndC_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** nConstant, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit signed integer channel image logical and with constant.
- **NppStatus nppiAndC_32s_C1IR** (const **Npp32s** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit signed integer channel in place image logical and with constant.
- **NppStatus nppiAndC_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit signed integer channel image logical and with constant.
- **NppStatus nppiAndC_32s_C3IR** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit signed integer channel in place image logical and with constant.
- **NppStatus nppiAndC_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_32s_AC4IR** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel in place image logical and with constant with unmodified alpha.
- **NppStatus nppiAndC_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[4], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel image logical and with constant.
- **NppStatus nppiAndC_32s_C4IR** (const **Npp32s** aConstants[4], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel in place image logical and with constant.

7.29.1 Detailed Description

Pixel by pixel logical and of an image with a constant.

7.29.2 Function Documentation

7.29.2.1 NppStatus nppiAndC_16u_AC4IR (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical and with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.2 NppStatus nppiAndC_16u_AC4R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical and with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.3 NppStatus nppiAndC_16u_C1IR (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical and with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.4 NppStatus nppiAndC_16u_C1R (const Npp16u **pSrcI*, int *nSrcIStep*, const Npp16u *nConstant*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical and with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.5 NppStatus nppiAndC_16u_C3IR (const Npp16u *aConstants*[3], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.6 NppStatus nppiAndC_16u_C3R (const Npp16u **pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image logical and with constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.7 NppStatus nppiAndC_16u_C4IR (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.8 NppStatus nppiAndC_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.29.2.9 NppStatus nppiAndC_32s_AC4IR (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical and with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.10 NppStatus nppiAndC_32s_AC4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical and with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.11 NppStatus nppiAndC_32s_C1IR (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical and with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.12 NppStatus nppiAndC_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s nConstant, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit signed integer channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.13 NppStatus nppiAndC_32s_C3IR (const Npp32s aConstants[3], Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit signed integer channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.14 NppStatus nppiAndC_32s_C3R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s aConstants[3], Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Three 32-bit signed integer channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.15 NppStatus nppiAndC_32s_C4IR (const Npp32s *aConstants*[4], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.16 NppStatus nppiAndC_32s_C4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s *aConstants*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.17 NppStatus nppiAndC_8u_AC4IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical and with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.18 NppStatus nppiAndC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical and with constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.19 NppStatus nppiAndC_8u_C1IR (const Npp8u nConstant, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel in place image logical and with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.20 NppStatus nppiAndC_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.21 NppStatus nppiAndC_8u_C3IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.22 NppStatus nppiAndC_8u_C3R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image logical and with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.23 NppStatus nppiAndC_8u_C4IR (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical and with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.29.2.24 NppStatus nppiAndC_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical and with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30 OrC

Pixel by pixel logical or of an image with a constant.

Functions

- **NppStatus nppiOrC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image logical or with constant.
- **NppStatus nppiOrC_8u_C1IR** (const **Npp8u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image logical or with constant.
- **NppStatus nppiOrC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image logical or with constant.
- **NppStatus nppiOrC_8u_C3IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image logical or with constant.
- **NppStatus nppiOrC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical or with constant with unmodified alpha.
- **NppStatus nppiOrC_8u_AC4IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical or with constant with unmodified alpha.
- **NppStatus nppiOrC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical or with constant.
- **NppStatus nppiOrC_8u_C4IR** (const **Npp8u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical or with constant.
- **NppStatus nppiOrC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image logical or with constant.
- **NppStatus nppiOrC_16u_C1IR** (const **Npp16u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image logical or with constant.
- **NppStatus nppiOrC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel image logical or with constant.

- `NppStatus nppiOrC_16u_C3IR` (const `Npp16u` aConstants[3], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Three 16-bit unsigned short channel in place image logical or with constant.
- `NppStatus nppiOrC_16u_AC4R` (const `Npp16u` *pSrc1, int nSrc1Step, const `Npp16u` aConstants[3], `Npp16u` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel image logical or with constant with unmodified alpha.
- `NppStatus nppiOrC_16u_AC4IR` (const `Npp16u` aConstants[3], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel in place image logical or with constant with unmodified alpha.
- `NppStatus nppiOrC_16u_C4R` (const `Npp16u` *pSrc1, int nSrc1Step, const `Npp16u` aConstants[4], `Npp16u` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel image logical or with constant.
- `NppStatus nppiOrC_16u_C4IR` (const `Npp16u` aConstants[4], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel in place image logical or with constant.
- `NppStatus nppiOrC_32s_C1R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32s` nConstant, `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

One 32-bit signed integer channel image logical or with constant.
- `NppStatus nppiOrC_32s_C1IR` (const `Npp32s` nConstant, `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

One 32-bit signed integer channel in place image logical or with constant.
- `NppStatus nppiOrC_32s_C3R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32s` aConstants[3], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Three 32-bit signed integer channel image logical or with constant.
- `NppStatus nppiOrC_32s_C3IR` (const `Npp32s` aConstants[3], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Three 32-bit signed integer channel in place image logical or with constant.
- `NppStatus nppiOrC_32s_AC4R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32s` aConstants[3], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel image logical or with constant with unmodified alpha.
- `NppStatus nppiOrC_32s_AC4IR` (const `Npp32s` aConstants[3], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel in place image logical or with constant with unmodified alpha.
- `NppStatus nppiOrC_32s_C4R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32s` aConstants[4], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel image logical or with constant.
- `NppStatus nppiOrC_32s_C4IR` (const `Npp32s` aConstants[4], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel in place image logical or with constant.

7.30.1 Detailed Description

Pixel by pixel logical or of an image with a constant.

7.30.2 Function Documentation

7.30.2.1 NppStatus nppiOrC_16u_AC4IR (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.2 NppStatus nppiOrC_16u_AC4R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical or with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.3 NppStatus nppiOrC_16u_C1IR (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.4 NppStatus nppiOrC_16u_C1R (const Npp16u * pSrcI, int nSrcIStep, const Npp16u nConstant, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

One 16-bit unsigned short channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.5 NppStatus nppiOrC_16u_C3IR (const Npp16u aConstants[3], Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 16-bit unsigned short channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.6 NppStatus nppiOrC_16u_C3R (const Npp16u * pSrcI, int nSrcIStep, const Npp16u aConstants[3], Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Three 16-bit unsigned short channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.30.2.7 NppStatus nppiOrC_16u_C4IR (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.30.2.8 NppStatus nppiOrC_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical or with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.30.2.9 NppStatus nppiOrC_32s_AC4IR (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.10 NppStatus nppiOrC_32s_AC4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical or with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.11 NppStatus nppiOrC_32s_C1IR (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.12 NppStatus nppiOrC_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s *nConstant*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image logical or with constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nConstant* Constant.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.13 NppStatus nppiOrC_32s_C3IR (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image logical or with constant.

Parameters:

- aConstants* fixed size array of constant values, one per channel.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.14 NppStatus nppiOrC_32s_C3R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical or with constant.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.15 NppStatus nppiOrC_32s_C4IR (const Npp32s *aConstants*[4], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.16 NppStatus nppiOrC_32s_C4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.17 NppStatus nppiOrC_8u_AC4IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.18 NppStatus nppiOrC_8u_AC4R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u * *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical or with constant with unmodified alpha.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- aConstants* fixed size array of constant values, one per channel.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.19 NppStatus nppiOrC_8u_C1IR (const Npp8u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image logical or with constant.

Parameters:

- nConstant* Constant.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.20 NppStatus nppiOrC_8u_C1R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image logical or with constant.

Parameters:

- pSrcI* Source-Image Pointer.
- nSrcIStep* Source-Image Line Step.
- nConstant* Constant.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.21 NppStatus nppiOrC_8u_C3IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.22 NppStatus nppiOrC_8u_C3R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image logical or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.23 NppStatus nppiOrC_8u_C4IR (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.30.2.24 NppStatus nppiOrC_8u_C4R (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **aConstants*[4], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical or with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31 XorC

Pixel by pixel logical exclusive or of an image with a constant.

Functions

- **NppStatus nppiXorC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_C1IR** (const **Npp8u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_C3IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_8u_AC4IR** (const **Npp8u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image logical exclusive or with constant.
- **NppStatus nppiXorC_8u_C4IR** (const **Npp8u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_C1IR** (const **Npp16u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel image logical exclusive or with constant.

- **NppStatus nppiXorC_16u_C3IR** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_16u_AC4IR** (const **Npp16u** aConstants[3], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** aConstants[4], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image logical exclusive or with constant.
- **NppStatus nppiXorC_16u_C4IR** (const **Npp16u** aConstants[4], **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** nConstant, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 32-bit signed integer channel image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C1IR** (const **Npp32s** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 32-bit signed integer channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 32-bit signed integer channel image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C3IR** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 32-bit signed integer channel in place image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_32s_AC4IR** (const **Npp32s** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel in place image logical exclusive or with constant with unmodified alpha.
- **NppStatus nppiXorC_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** aConstants[4], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel image logical exclusive or with constant.
- **NppStatus nppiXorC_32s_C4IR** (const **Npp32s** aConstants[4], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel in place image logical exclusive or with constant.

7.31.1 Detailed Description

Pixel by pixel logical exclusive or of an image with a constant.

7.31.2 Function Documentation

7.31.2.1 NppStatus nppiXorC_16u_AC4IR (const Npp16u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical exclusive or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.2 NppStatus nppiXorC_16u_AC4R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical exclusive or with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.3 NppStatus nppiXorC_16u_C1IR (const Npp16u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical exclusive or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.4 NppStatus nppiXorC_16u_C1R (const Npp16u **pSrcI*, int *nSrcIStep*, const Npp16u *nConstant*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical exclusive or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.5 NppStatus nppiXorC_16u_C3IR (const Npp16u *aConstants*[3], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.6 NppStatus nppiXorC_16u_C3R (const Npp16u **pSrcI*, int *nSrcIStep*, const Npp16u *aConstants*[3], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image logical exclusive or with constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.7 NppStatus nppiXorC_16u_C4IR (const Npp16u *aConstants*[4], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.8 NppStatus nppiXorC_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u *aConstants*[4], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.31.2.9 NppStatus nppiXorC_32s_AC4IR (const Npp32s *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical exclusive or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.10 NppStatus nppiXorC_32s_AC4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical exclusive or with constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.11 NppStatus nppiXorC_32s_C1IR (const Npp32s *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical exclusive or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.12 NppStatus nppiXorC_32s_C1R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s *nConstant*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.13 NppStatus nppiXorC_32s_C3IR (const Npp32s *aConstants*[3], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.14 NppStatus nppiXorC_32s_C3R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s *aConstants*[3], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.15 NppStatus nppiXorC_32s_C4IR (const Npp32s *aConstants*[4], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.16 NppStatus nppiXorC_32s_C4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32s *aConstants*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical exclusive or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.17 NppStatus nppiXorC_8u_AC4IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical exclusive or with constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.18 NppStatus nppiXorC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or with constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.19 NppStatus nppiXorC_8u_C1IR (const Npp8u nConstant, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel in place image logical exclusive or with constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.20 NppStatus nppiXorC_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.21 NppStatus nppiXorC_8u_C3IR (const Npp8u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.22 NppStatus nppiXorC_8u_C3R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp8u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image logical exclusive or with constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.23 NppStatus nppiXorC_8u_C4IR (const Npp8u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical exclusive or with constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.31.2.24 NppStatus nppiXorC_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or with constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32 RShiftC

Pixel by pixel right shift of an image by a constant value.

Functions

- `NppStatus nppiRShiftC_8u_C1R (const Npp8u *pSrc1, int nSrc1Step, const Npp32u nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
One 8-bit unsigned char channel image right shift by constant.
- `NppStatus nppiRShiftC_8u_C1IR (const Npp32u nConstant, Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
One 8-bit unsigned char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8u_C3R (const Npp8u *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
Three 8-bit unsigned char channel image right shift by constant.
- `NppStatus nppiRShiftC_8u_C3IR (const Npp32u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Three 8-bit unsigned char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8u_AC4R (const Npp8u *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_8u_AC4IR (const Npp32u aConstants[3], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel in place image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_8u_C4R (const Npp8u *pSrc1, int nSrc1Step, const Npp32u aConstants[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel image right shift by constant.
- `NppStatus nppiRShiftC_8u_C4IR (const Npp32u aConstants[4], Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8s_C1R (const Npp8s *pSrc1, int nSrc1Step, const Npp32u nConstant, Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
One 8-bit signed char channel image right shift by constant.
- `NppStatus nppiRShiftC_8s_C1IR (const Npp32u nConstant, Npp8s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
One 8-bit signed char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8s_C3R (const Npp8s *pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
Three 8-bit signed char channel image right shift by constant.

- `NppStatus nppiRShiftC_8s_C3IR` (const `Npp32u` aConstants[3], `Npp8s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`)
Three 8-bit signed char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_8s_AC4R` (const `Npp8s` *`pSrc1`, int `nSrc1Step`, const `Npp32u` aConstants[3], `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
Four 8-bit signed char channel image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_8s_AC4IR` (const `Npp32u` aConstants[3], `Npp8s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`)
Four 8-bit signed char channel in place image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_8s_C4R` (const `Npp8s` *`pSrc1`, int `nSrc1Step`, const `Npp32u` aConstants[4], `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
Four 8-bit signed char channel image right shift by constant.
- `NppStatus nppiRShiftC_8s_C4IR` (const `Npp32u` aConstants[4], `Npp8s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`)
Four 8-bit signed char channel in place image right shift by constant.
- `NppStatus nppiRShiftC_16u_C1R` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp32u` `nConstant`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
One 16-bit unsigned short channel image right shift by constant.
- `NppStatus nppiRShiftC_16u_C1IR` (const `Npp32u` `nConstant`, `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`)
One 16-bit unsigned short channel in place image right shift by constant.
- `NppStatus nppiRShiftC_16u_C3R` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp32u` aConstants[3], `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
Three 16-bit unsigned short channel image right shift by constant.
- `NppStatus nppiRShiftC_16u_C3IR` (const `Npp32u` aConstants[3], `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`)
Three 16-bit unsigned short channel in place image right shift by constant.
- `NppStatus nppiRShiftC_16u_AC4R` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp32u` aConstants[3], `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
Four 16-bit unsigned short channel image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_16u_AC4IR` (const `Npp32u` aConstants[3], `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`)
Four 16-bit unsigned short channel in place image right shift by constant with unmodified alpha.
- `NppStatus nppiRShiftC_16u_C4R` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp32u` aConstants[4], `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
Four 16-bit unsigned short channel image right shift by constant.
- `NppStatus nppiRShiftC_16u_C4IR` (const `Npp32u` aConstants[4], `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize` `oSizeROI`)
Four 16-bit unsigned short channel in place image right shift by constant.

- **NppStatus nppiRShiftC_16s_C1R** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp32u** nConstant, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit signed short channel image right shift by constant.
- **NppStatus nppiRShiftC_16s_C1IR** (const **Npp32u** nConstant, **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit signed short channel in place image right shift by constant.
- **NppStatus nppiRShiftC_16s_C3R** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit signed short channel image right shift by constant.
- **NppStatus nppiRShiftC_16s_C3IR** (const **Npp32u** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 16-bit signed short channel in place image right shift by constant.
- **NppStatus nppiRShiftC_16s_AC4R** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit signed short channel image right shift by constant with unmodified alpha.
- **NppStatus nppiRShiftC_16s_AC4IR** (const **Npp32u** aConstants[3], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit signed short channel in place image right shift by constant with unmodified alpha.
- **NppStatus nppiRShiftC_16s_C4R** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[4], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit signed short channel image right shift by constant.
- **NppStatus nppiRShiftC_16s_C4IR** (const **Npp32u** aConstants[4], **Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit signed short channel in place image right shift by constant.
- **NppStatus nppiRShiftC_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32u** nConstant, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel image right shift by constant.
- **NppStatus nppiRShiftC_32s_C1IR** (const **Npp32u** nConstant, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel in place image right shift by constant.
- **NppStatus nppiRShiftC_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel image right shift by constant.
- **NppStatus nppiRShiftC_32s_C3IR** (const **Npp32u** aConstants[3], **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel in place image right shift by constant.
- **NppStatus nppiRShiftC_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 32-bit signed integer channel image right shift by constant with unmodified alpha.

- **NppStatus nppiRShiftC_32s_AC4IR** (const Npp32u *aConstants*[3], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image right shift by constant with unmodified alpha.

- **NppStatus nppiRShiftC_32s_C4R** (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[4], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image right shift by constant.

- **NppStatus nppiRShiftC_32s_C4IR** (const Npp32u *aConstants*[4], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image right shift by constant.

7.32.1 Detailed Description

Pixel by pixel right shift of an image by a constant value.

7.32.2 Function Documentation

7.32.2.1 NppStatus nppiRShiftC_16s_AC4IR (const Npp32u *aConstants*[3], Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit signed short channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.2 NppStatus nppiRShiftC_16s_AC4R (const Npp16s **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[3], Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit signed short channel image right shift by constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.3 NppStatus nppiRShiftC_16s_C1IR (const Npp32u *nConstant*, Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit signed short channel in place image right shift by constant.

Parameters:

nConstant Constant.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.4 NppStatus nppiRShiftC_16s_C1R (const Npp16s **pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit signed short channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.

nSrcIStep Source-Image Line Step.

nConstant Constant.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.5 NppStatus nppiRShiftC_16s_C3IR (const Npp32u *aConstants*[3], Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit signed short channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.6 NppStatus nppiRShiftC_16s_C3R (const Npp16s * pSrcI, int nSrcIStep, const Npp32u aConstants[3], Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

Three 16-bit signed short channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.7 NppStatus nppiRShiftC_16s_C4IR (const Npp32u aConstants[4], Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 16-bit signed short channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.8 NppStatus nppiRShiftC_16s_C4R (const Npp16s * pSrcI, int nSrcIStep, const Npp32u aConstants[4], Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit signed short channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.9 NppStatus nppiRShiftC_16u_AC4IR (const Npp32u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.10 NppStatus nppiRShiftC_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image right shift by constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.32.2.11 NppStatus nppiRShiftC_16u_C1IR (const Npp32u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image right shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.12 NppStatus nppiRShiftC_16u_C1R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.13 NppStatus nppiRShiftC_16u_C3IR (const Npp32u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.14 NppStatus nppiRShiftC_16u_C3R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[3], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image right shift by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.15 NppStatus nppiRShiftC_16u_C4IR (const Npp32u *aConstants*[4], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.16 NppStatus nppiRShiftC_16u_C4R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[4], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image right shift by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.17 NppStatus nppiRShiftC_32s_AC4IR (const Npp32u *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.18 NppStatus nppiRShiftC_32s_AC4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image right shift by constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.19 NppStatus nppiRShiftC_32s_C1IR (const Npp32u *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image right shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.20 NppStatus nppiRShiftC_32s_C1R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.21 NppStatus nppiRShiftC_32s_C3IR (const Npp32u *aConstants*[3], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.22 NppStatus nppiRShiftC_32s_C3R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.23 NppStatus nppiRShiftC_32s_C4IR (const Npp32u *aConstants*[4], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.24 NppStatus nppiRShiftC_32s_C4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.25 NppStatus nppiRShiftC_8s_AC4IR (const Npp32u *aConstants*[3], Npp8s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit signed char channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.26 NppStatus nppiRShiftC_8s_AC4R (const Npp8s * pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8s * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit signed char channel image right shift by constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.27 NppStatus nppiRShiftC_8s_C1IR (const Npp32u nConstant, Npp8s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit signed char channel in place image right shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.28 NppStatus nppiRShiftC_8s_C1R (const Npp8s * pSrc1, int nSrc1Step, const Npp32u nConstant, Npp8s * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit signed char channel image right shift by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.29 NppStatus nppiRShiftC_8s_C3IR (const Npp32u *aConstants*[3], Npp8s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit signed char channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.30 NppStatus nppiRShiftC_8s_C3R (const Npp8s * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit signed char channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.31 NppStatus nppiRShiftC_8s_C4IR (const Npp32u *aConstants*[4], Npp8s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit signed char channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.32 NppStatus nppiRShiftC_8s_C4R (const Npp8s * pSrc1, int nSrc1Step, const Npp32u aConstants[4], Npp8s * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit signed char channel image right shift by constant.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.33 NppStatus nppiRShiftC_8u_AC4IR (const Npp32u aConstants[3], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image right shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.34 NppStatus nppiRShiftC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp32u aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image right shift by constant with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.35 NppStatus nppiRShiftC_8u_C1IR (const Npp32u *nConstant*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image right shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.36 NppStatus nppiRShiftC_8u_C1R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.37 NppStatus nppiRShiftC_8u_C3IR (const Npp32u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.38 NppStatus nppiRShiftC_8u_C3R (const Npp8u * pSrcI, int nSrcIStep, const Npp32u aConstants[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.39 NppStatus nppiRShiftC_8u_C4IR (const Npp32u aConstants[4], Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image right shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.32.2.40 NppStatus nppiRShiftC_8u_C4R (const Npp8u * pSrcI, int nSrcIStep, const Npp32u aConstants[4], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image right shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33 LShiftC

Pixel by pixel left shift of an image by a constant value.

Functions

- **NppStatus nppiLShiftC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp32u** nConstant, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel image left shift by constant.
- **NppStatus nppiLShiftC_8u_C1IR** (const **Npp32u** nConstant, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel in place image left shift by constant.
- **NppStatus nppiLShiftC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel image left shift by constant.
- **NppStatus nppiLShiftC_8u_C3IR** (const **Npp32u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel in place image left shift by constant.
- **NppStatus nppiLShiftC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image left shift by constant with unmodified alpha.
- **NppStatus nppiLShiftC_8u_AC4IR** (const **Npp32u** aConstants[3], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image left shift by constant with unmodified alpha.
- **NppStatus nppiLShiftC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[4], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image left shift by constant.
- **NppStatus nppiLShiftC_8u_C4IR** (const **Npp32u** aConstants[4], **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image left shift by constant.
- **NppStatus nppiLShiftC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp32u** nConstant, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel image left shift by constant.
- **NppStatus nppiLShiftC_16u_C1IR** (const **Npp32u** nConstant, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel in place image left shift by constant.
- **NppStatus nppiLShiftC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp32u** aConstants[3], **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel image left shift by constant.

- `NppStatus nppiLShiftC_16u_C3IR` (const `Npp32u` aConstants[3], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Three 16-bit unsigned short channel in place image left shift by constant.
- `NppStatus nppiLShiftC_16u_AC4R` (const `Npp16u` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[3], `Npp16u` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel image left shift by constant with unmodified alpha.
- `NppStatus nppiLShiftC_16u_AC4IR` (const `Npp32u` aConstants[3], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel in place image left shift by constant with unmodified alpha.
- `NppStatus nppiLShiftC_16u_C4R` (const `Npp16u` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[4], `Npp16u` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel image left shift by constant.
- `NppStatus nppiLShiftC_16u_C4IR` (const `Npp32u` aConstants[4], `Npp16u` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 16-bit unsigned short channel in place image left shift by constant.
- `NppStatus nppiLShiftC_32s_C1R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32u` nConstant, `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

One 32-bit signed integer channel image left shift by constant.
- `NppStatus nppiLShiftC_32s_C1IR` (const `Npp32u` nConstant, `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

One 32-bit signed integer channel in place image left shift by constant.
- `NppStatus nppiLShiftC_32s_C3R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[3], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Three 32-bit signed integer channel image left shift by constant.
- `NppStatus nppiLShiftC_32s_C3IR` (const `Npp32u` aConstants[3], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Three 32-bit signed integer channel in place image left shift by constant.
- `NppStatus nppiLShiftC_32s_AC4R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[3], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel image left shift by constant with unmodified alpha.
- `NppStatus nppiLShiftC_32s_AC4IR` (const `Npp32u` aConstants[3], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel in place image left shift by constant with unmodified alpha.
- `NppStatus nppiLShiftC_32s_C4R` (const `Npp32s` *pSrc1, int nSrc1Step, const `Npp32u` aConstants[4], `Npp32s` *pDst, int nDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel image left shift by constant.
- `NppStatus nppiLShiftC_32s_C4IR` (const `Npp32u` aConstants[4], `Npp32s` *pSrcDst, int nSrcDstStep, `NppiSize` oSizeROI)

Four 32-bit signed integer channel in place image left shift by constant.

7.33.1 Detailed Description

Pixel by pixel left shift of an image by a constant value.

7.33.2 Function Documentation

7.33.2.1 NppStatus nppiLShiftC_16u_AC4IR (const Npp32u *aConstants*[3], Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image left shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.2 NppStatus nppiLShiftC_16u_AC4R (const Npp16u * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image left shift by constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.3 NppStatus nppiLShiftC_16u_C1IR (const Npp32u *nConstant*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image left shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.4 NppStatus nppiLShiftC_16u_C1R (const Npp16u **pSrcI*, int *nSrc1Step*, const Npp32u *nConstant*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nConstant Constant
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.5 NppStatus nppiLShiftC_16u_C3IR (const Npp32u *aConstants*[3], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.6 NppStatus nppiLShiftC_16u_C3R (const Npp16u **pSrcI*, int *nSrc1Step*, const Npp32u *aConstants*[3], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.7 NppStatus nppiLShiftC_16u_C4IR (const Npp32u *aConstants*[4], Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.8 NppStatus nppiLShiftC_16u_C4R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[4], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image left shift by constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.33.2.9 NppStatus nppiLShiftC_32s_AC4IR (const Npp32u *aConstants*[3], Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image left shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.10 NppStatus nppiLShiftC_32s_AC4R (const Npp32s * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image left shift by constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.11 NppStatus nppiLShiftC_32s_C1IR (const Npp32u *nConstant*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image left shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.12 NppStatus nppiLShiftC_32s_C1R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.13 NppStatus nppiLShiftC_32s_C3IR (const Npp32u *aConstants*[3], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.14 NppStatus nppiLShiftC_32s_C3R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.15 NppStatus nppiLShiftC_32s_C4IR (const Npp32u *aConstants*[4], Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.16 NppStatus nppiLShiftC_32s_C4R (const Npp32s **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[4], Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.17 NppStatus nppiLShiftC_8u_AC4IR (const Npp32u *aConstants*[3], Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image left shift by constant with unmodified alpha.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.18 NppStatus nppiLShiftC_8u_AC4R (const Npp8u **pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image left shift by constant with unmodified alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.19 NppStatus nppiLShiftC_8u_C1IR (const Npp32u *nConstant*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image left shift by constant.

Parameters:

nConstant Constant.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.20 NppStatus nppiLShiftC_8u_C1R (const Npp8u **pSrcI*, int *nSrcIStep*, const Npp32u *nConstant*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nConstant Constant.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.21 NppStatus nppiLShiftC_8u_C3IR (const Npp32u *aConstants*[3], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.22 NppStatus nppiLShiftC_8u_C3R (const Npp8u * *pSrcI*, int *nSrcIStep*, const Npp32u *aConstants*[3], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image left shift by constant.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
aConstants fixed size array of constant values, one per channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.23 NppStatus nppiLShiftC_8u_C4IR (const Npp32u *aConstants*[4], Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image left shift by constant.

Parameters:

aConstants fixed size array of constant values, one per channel.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.33.2.24 NppStatus nppiLShiftC_8u_C4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp32u *aConstants*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image left shift by constant.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

aConstants fixed size array of constant values, one per channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34 And

Pixel by pixel logical and of images.

Functions

- **NppStatus nppiAnd_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image logical and.
- **NppStatus nppiAnd_8u_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image logical and.
- **NppStatus nppiAnd_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image logical and.
- **NppStatus nppiAnd_8u_C3IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image logical and.
- **NppStatus nppiAnd_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical and with unmodified alpha.
- **NppStatus nppiAnd_8u_AC4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical and with unmodified alpha.
- **NppStatus nppiAnd_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical and.
- **NppStatus nppiAnd_8u_C4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical and.
- **NppStatus nppiAnd_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image logical and.
- **NppStatus nppiAnd_16u_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image logical and.
- **NppStatus nppiAnd_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel image logical and.

- **NppStatus nppiAnd_16u_C3IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel in place image logical and.
- **NppStatus nppiAnd_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical and with unmodified alpha.
- **NppStatus nppiAnd_16u_AC4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical and with unmodified alpha.
- **NppStatus nppiAnd_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical and.
- **NppStatus nppiAnd_16u_C4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical and.
- **NppStatus nppiAnd_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel image logical and.
- **NppStatus nppiAnd_32s_C1IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel in place image logical and.
- **NppStatus nppiAnd_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel image logical and.
- **NppStatus nppiAnd_32s_C3IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel in place image logical and.
- **NppStatus nppiAnd_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical and with unmodified alpha.
- **NppStatus nppiAnd_32s_AC4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical and with unmodified alpha.
- **NppStatus nppiAnd_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical and.
- **NppStatus nppiAnd_32s_C4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical and.

7.34.1 Detailed Description

Pixel by pixel logical and of images.

7.34.2 Function Documentation

7.34.2.1 NppStatus nppiAnd_16u_AC4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical and with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.2 NppStatus nppiAnd_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical and with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.3 NppStatus nppiAnd_16u_C1IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.4 NppStatus nppiAnd_16u_C1R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.5 NppStatus nppiAnd_16u_C3IR (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.6 NppStatus nppiAnd_16u_C3R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.7 NppStatus nppiAnd_16u_C4IR (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.8 NppStatus nppiAnd_16u_C4R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.9 NppStatus nppiAnd_32s_AC4IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical and with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.10 NppStatus nppiAnd_32s_AC4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical and with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.11 NppStatus nppiAnd_32s_C1IR (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.12 NppStatus nppiAnd_32s_C1R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s **pSrc2*, int *nSrc2Step*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.13 NppStatus nppiAnd_32s_C3IR (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.14 NppStatus nppiAnd_32s_C3R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s **pSrc2*, int *nSrc2Step*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.15 NppStatus nppiAnd_32s_C4IR (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.16 NppStatus nppiAnd_32s_C4R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s **pSrc2*, int *nSrc2Step*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.17 NppStatus nppiAnd_8u_AC4IR (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical and with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.18 NppStatus nppiAnd_8u_AC4R (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **pSrc2*, int *nSrc2Step*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical and with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.34.2.19 NppStatus nppiAnd_8u_C1IR (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.20 NppStatus nppiAnd_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.21 NppStatus nppiAnd_8u_C3IR (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.22 NppStatus nppiAnd_8u_C3R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.23 NppStatus nppiAnd_8u_C4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical and.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.34.2.24 NppStatus nppiAnd_8u_C4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical and.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35 Or

Pixel by pixel logical or of images.

Functions

- **NppStatus nppiOr_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image logical or.
- **NppStatus nppiOr_8u_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image logical or.
- **NppStatus nppiOr_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image logical or.
- **NppStatus nppiOr_8u_C3IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image logical or.
- **NppStatus nppiOr_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical or with unmodified alpha.
- **NppStatus nppiOr_8u_AC4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical or with unmodified alpha.
- **NppStatus nppiOr_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical or.
- **NppStatus nppiOr_8u_C4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical or.
- **NppStatus nppiOr_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image logical or.
- **NppStatus nppiOr_16u_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image logical or.
- **NppStatus nppiOr_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel image logical or.

- **NppStatus nppiOr_16u_C3IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel in place image logical or.
- **NppStatus nppiOr_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical or with unmodified alpha.
- **NppStatus nppiOr_16u_AC4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical or with unmodified alpha.
- **NppStatus nppiOr_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel image logical or.
- **NppStatus nppiOr_16u_C4IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 16-bit unsigned short channel in place image logical or.
- **NppStatus nppiOr_32s_C1R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel image logical or.
- **NppStatus nppiOr_32s_C1IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 32-bit signed integer channel in place image logical or.
- **NppStatus nppiOr_32s_C3R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel image logical or.
- **NppStatus nppiOr_32s_C3IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 32-bit signed integer channel in place image logical or.
- **NppStatus nppiOr_32s_AC4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical or with unmodified alpha.
- **NppStatus nppiOr_32s_AC4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical or with unmodified alpha.
- **NppStatus nppiOr_32s_C4R** (const **Npp32s** *pSrc1, int nSrc1Step, const **Npp32s** *pSrc2, int nSrc2Step, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel image logical or.
- **NppStatus nppiOr_32s_C4IR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 32-bit signed integer channel in place image logical or.

7.35.1 Detailed Description

Pixel by pixel logical or of images.

7.35.2 Function Documentation

7.35.2.1 NppStatus nppiOr_16u_AC4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.2 NppStatus nppiOr_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.3 NppStatus nppiOr_16u_C1IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.4 NppStatus nppiOr_16u_C1R (const Npp16u **pSrc1*, int *nSrc1Step*, const Npp16u **pSrc2*, int *nSrc2Step*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.5 NppStatus nppiOr_16u_C3IR (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.6 NppStatus nppiOr_16u_C3R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.7 NppStatus nppiOr_16u_C4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.8 NppStatus nppiOr_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.9 NppStatus nppiOr_32s_AC4IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.10 NppStatus nppiOr_32s_AC4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.11 NppStatus nppiOr_32s_C1IR (const Npp32s * pSrc, int nSrcStep, Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 32-bit signed integer channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.12 NppStatus nppiOr_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

One 32-bit signed integer channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.13 NppStatus nppiOr_32s_C3IR (const Npp32s * pSrc, int nSrcStep, Npp32s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 32-bit signed integer channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.14 NppStatus nppiOr_32s_C3R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.15 NppStatus nppiOr_32s_C4IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.16 NppStatus nppiOr_32s_C4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.17 NppStatus nppiOr_8u_AC4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.18 NppStatus nppiOr_8u_AC4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.35.2.19 NppStatus nppiOr_8u_C1IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.20 NppStatus nppiOr_8u_C1R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.21 NppStatus nppiOr_8u_C3IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.22 NppStatus nppiOr_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.23 NppStatus nppiOr_8u_C4IR (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image logical or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.35.2.24 NppStatus nppiOr_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36 Xor

Pixel by pixel logical exclusive or of images.

Functions

- **NppStatus nppiXor_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel image logical exclusive or.
- **NppStatus nppiXor_8u_C1IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 8-bit unsigned char channel in place image logical exclusive or.
- **NppStatus nppiXor_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel image logical exclusive or.
- **NppStatus nppiXor_8u_C3IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 8-bit unsigned char channel in place image logical exclusive or.
- **NppStatus nppiXor_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or with unmodified alpha.
- **NppStatus nppiXor_8u_AC4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical exclusive or with unmodified alpha.
- **NppStatus nppiXor_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or.
- **NppStatus nppiXor_8u_C4IR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 8-bit unsigned char channel in place image logical exclusive or.
- **NppStatus nppiXor_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel image logical exclusive or.
- **NppStatus nppiXor_16u_C1IR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

One 16-bit unsigned short channel in place image logical exclusive or.
- **NppStatus nppiXor_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, const **Npp16u** *pSrc2, int nSrc2Step, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel image logical exclusive or.

- `NppStatus nppiXor_16u_C3IR` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

Three 16-bit unsigned short channel in place image logical exclusive or.

- `NppStatus nppiXor_16u_AC4R` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp16u` *`pSrc2`, int `nSrc2Step`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four 16-bit unsigned short channel image logical exclusive or with unmodified alpha.

- `NppStatus nppiXor_16u_AC4IR` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

Four 16-bit unsigned short channel in place image logical exclusive or with unmodified alpha.

- `NppStatus nppiXor_16u_C4R` (const `Npp16u` *`pSrc1`, int `nSrc1Step`, const `Npp16u` *`pSrc2`, int `nSrc2Step`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four 16-bit unsigned short channel image logical exclusive or.

- `NppStatus nppiXor_16u_C4IR` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp16u` *`pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

Four 16-bit unsigned short channel in place image logical exclusive or.

- `NppStatus nppiXor_32s_C1R` (const `Npp32s` *`pSrc1`, int `nSrc1Step`, const `Npp32s` *`pSrc2`, int `nSrc2Step`, `Npp32s` *`pDst`, int `nDstStep`, `NppiSize oSizeROI`)

One 32-bit signed integer channel image logical exclusive or.

- `NppStatus nppiXor_32s_C1IR` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp32s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

One 32-bit signed integer channel in place image logical exclusive or.

- `NppStatus nppiXor_32s_C3R` (const `Npp32s` *`pSrc1`, int `nSrc1Step`, const `Npp32s` *`pSrc2`, int `nSrc2Step`, `Npp32s` *`pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Three 32-bit signed integer channel image logical exclusive or.

- `NppStatus nppiXor_32s_C3IR` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp32s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

Three 32-bit signed integer channel in place image logical exclusive or.

- `NppStatus nppiXor_32s_AC4R` (const `Npp32s` *`pSrc1`, int `nSrc1Step`, const `Npp32s` *`pSrc2`, int `nSrc2Step`, `Npp32s` *`pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four 32-bit signed integer channel image logical exclusive or with unmodified alpha.

- `NppStatus nppiXor_32s_AC4IR` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp32s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

Four 32-bit signed integer channel in place image logical exclusive or with unmodified alpha.

- `NppStatus nppiXor_32s_C4R` (const `Npp32s` *`pSrc1`, int `nSrc1Step`, const `Npp32s` *`pSrc2`, int `nSrc2Step`, `Npp32s` *`pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four 32-bit signed integer channel image logical exclusive or.

- `NppStatus nppiXor_32s_C4IR` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp32s` *`pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`)

Four 32-bit signed integer channel in place image logical exclusive or.

7.36.1 Detailed Description

Pixel by pixel logical exclusive or of images.

7.36.2 Function Documentation

7.36.2.1 NppStatus nppiXor_16u_AC4IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image logical exclusive or with unmodified alpha.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.2 NppStatus nppiXor_16u_AC4R (const Npp16u * *pSrc1*, const Npp16u * *pSrc2*, int *nSrc1Step*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image logical exclusive or with unmodified alpha.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- pSrc2* Source-Image Pointer.
- nSrc2Step* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.3 NppStatus nppiXor_16u_C1IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image logical exclusive or.

Parameters:

- pSrc* Source-Image Pointer.

nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.4 NppStatus nppiXor_16u_C1R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.5 NppStatus nppiXor_16u_C3IR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.6 NppStatus nppiXor_16u_C3R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Three 16-bit unsigned short channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.7 NppStatus nppiXor_16u_C4IR (const Npp16u * pSrc, int nSrcStep, Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.8 NppStatus nppiXor_16u_C4R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.9 NppStatus nppiXor_32s_AC4IR (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical exclusive or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.10 NppStatus nppiXor_32s_AC4R (const Npp32s **pSrc1*, int *nSrc1Step*, const Npp32s **pSrc2*, int *nSrc2Step*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical exclusive or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.11 NppStatus nppiXor_32s_C1IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.12 NppStatus nppiXor_32s_C1R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 32-bit signed integer channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.13 NppStatus nppiXor_32s_C3IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.14 NppStatus nppiXor_32s_C3R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 32-bit signed integer channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.15 NppStatus nppiXor_32s_C4IR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.16 NppStatus nppiXor_32s_C4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 32-bit signed integer channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.17 NppStatus nppiXor_8u_AC4IR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image logical exclusive or with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.18 NppStatus nppiXor_8u_AC4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image logical exclusive or with unmodified alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.36.2.19 NppStatus nppiXor_8u_C1IR (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.20 NppStatus nppiXor_8u_C1R (const Npp8u **pSrc1*, int *nSrc1Step*, const Npp8u **pSrc2*, int *nSrc2Step*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.21 NppStatus nppiXor_8u_C3IR (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.22 NppStatus nppiXor_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.23 NppStatus nppiXor_8u_C4IR (const Npp8u * pSrc, int nSrcStep, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image logical exclusive or.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.36.2.24 NppStatus nppiXor_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical exclusive or.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.37 Not

Pixel by pixel logical not of image.

Functions

- [NppStatus nppiNot_8u_C1R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize oSizeROI](#))
One 8-bit unsigned char channel image logical not.
- [NppStatus nppiNot_8u_C1IR](#) ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))
One 8-bit unsigned char channel in place image logical not.
- [NppStatus nppiNot_8u_C3R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize oSizeROI](#))
Three 8-bit unsigned char channel image logical not.
- [NppStatus nppiNot_8u_C3IR](#) ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))
Three 8-bit unsigned char channel in place image logical not.
- [NppStatus nppiNot_8u_AC4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize oSizeROI](#))
Four 8-bit unsigned char channel image logical not with unmodified alpha.
- [NppStatus nppiNot_8u_AC4IR](#) ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))
Four 8-bit unsigned char channel in place image logical not with unmodified alpha.
- [NppStatus nppiNot_8u_C4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize oSizeROI](#))
Four 8-bit unsigned char channel image logical not.
- [NppStatus nppiNot_8u_C4IR](#) ([Npp8u](#) *pSrcDst, int nSrcDstStep, [NppiSize oSizeROI](#))
Four 8-bit unsigned char channel in place image logical not.

7.37.1 Detailed Description

Pixel by pixel logical not of image.

7.37.2 Function Documentation

7.37.2.1 NppStatus nppiNot_8u_AC4IR ([Npp8u](#) **pSrcDst*, int *nSrcDstStep*, [NppiSize](#) *oSizeROI*)

Four 8-bit unsigned char channel in place image logical not with unmodified alpha.

Parameters:

- pSrcDst* In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.37.2.2 NppStatus nppiNot_8u_AC4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical not with unmodified alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.37.2.3 NppStatus nppiNot_8u_C1IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel in place image logical not.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.37.2.4 NppStatus nppiNot_8u_C1R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

One 8-bit unsigned char channel image logical not.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.37.2.5 NppStatus nppiNot_8u_C3IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel in place image logical not.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.37.2.6 NppStatus nppiNot_8u_C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three 8-bit unsigned char channel image logical not.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.37.2.7 NppStatus nppiNot_8u_C4IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image logical not.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.37.2.8 NppStatus nppiNot_8u_C4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image logical not.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.38 Alpha Composition

Modules

- [AlphaCompC](#)

Composite two images using constant alpha values.

- [AlphaPremulC](#)

Premultiplies pixels of an image using a constant alpha value.

- [AlphaComp](#)

Composite two images using alpha opacity values contained in each image.

- [AlphaPremul](#)

Premultiplies image pixels by image alpha opacity values.

7.39 AlphaCompC

Composite two images using constant alpha values.

Functions

- `NppStatus nppiAlphaCompC_8u_C1R` (const `Npp8u *pSrc1`, int `nSrc1Step`, `Npp8u nAlpha1`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u nAlpha2`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

One 8-bit unsigned char channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_8u_C3R` (const `Npp8u *pSrc1`, int `nSrc1Step`, `Npp8u nAlpha1`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u nAlpha2`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Three 8-bit unsigned char channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_8u_C4R` (const `Npp8u *pSrc1`, int `nSrc1Step`, `Npp8u nAlpha1`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u nAlpha2`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Four 8-bit unsigned char channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_8u_AC4R` (const `Npp8u *pSrc1`, int `nSrc1Step`, `Npp8u nAlpha1`, const `Npp8u *pSrc2`, int `nSrc2Step`, `Npp8u nAlpha2`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Four 8-bit unsigned char channel image composition with alpha using constant source alpha.

- `NppStatus nppiAlphaCompC_8s_C1R` (const `Npp8s *pSrc1`, int `nSrc1Step`, `Npp8s nAlpha1`, const `Npp8s *pSrc2`, int `nSrc2Step`, `Npp8s nAlpha2`, `Npp8s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

One 8-bit signed char channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_16u_C1R` (const `Npp16u *pSrc1`, int `nSrc1Step`, `Npp16u nAlpha1`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u nAlpha2`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

One 16-bit unsigned short channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_16u_C3R` (const `Npp16u *pSrc1`, int `nSrc1Step`, `Npp16u nAlpha1`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u nAlpha2`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Three 16-bit unsigned short channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_16u_C4R` (const `Npp16u *pSrc1`, int `nSrc1Step`, `Npp16u nAlpha1`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u nAlpha2`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Four 16-bit unsigned short channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_16u_AC4R` (const `Npp16u *pSrc1`, int `nSrc1Step`, `Npp16u nAlpha1`, const `Npp16u *pSrc2`, int `nSrc2Step`, `Npp16u nAlpha2`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `NppiAlphaOp eAlphaOp`)

Four 16-bit unsigned short channel image composition with alpha using constant source alpha.

- `NppStatus nppiAlphaCompC_16s_C1R (const Npp16s *pSrc1, int nSrc1Step, Npp16s nAlpha1, const Npp16s *pSrc2, int nSrc2Step, Npp16s nAlpha2, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 16-bit signed short channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_32u_C1R (const Npp32u *pSrc1, int nSrc1Step, Npp32u nAlpha1, const Npp32u *pSrc2, int nSrc2Step, Npp32u nAlpha2, Npp32u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 32-bit unsigned integer channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_32s_C1R (const Npp32s *pSrc1, int nSrc1Step, Npp32s nAlpha1, const Npp32s *pSrc2, int nSrc2Step, Npp32s nAlpha2, Npp32s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 32-bit signed integer channel image composition using constant alpha.

- `NppStatus nppiAlphaCompC_32f_C1R (const Npp32f *pSrc1, int nSrc1Step, Npp32f nAlpha1, const Npp32f *pSrc2, int nSrc2Step, Npp32f nAlpha2, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 32-bit floating point channel image composition using constant alpha.

7.39.1 Detailed Description

Composite two images using constant alpha values.

7.39.2 Function Documentation

7.39.2.1 `NppStatus nppiAlphaCompC_16s_C1R (const Npp16s *pSrc1, int nSrc1Step, Npp16s nAlpha1, const Npp16s *pSrc2, int nSrc2Step, Npp16s nAlpha2, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`

One 16-bit signed short channel image composition using constant alpha.

Parameters:

`pSrc1` Source-Image Pointer.

`nSrc1Step` Source-Image Line Step.

`nAlpha1` Image alpha opacity (0 - max channel pixel value).

`pSrc2` Source-Image Pointer.

`nSrc2Step` Source-Image Line Step.

`nAlpha2` Image alpha opacity (0 - max channel pixel value).

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

`eAlphaOp` alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.2 NppStatus nppiAlphaCompC_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, Npp16u *nAlpha1*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u *nAlpha2*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiAlphaOp *eAlphaOp*)

Four 16-bit unsigned short channel image composition with alpha using constant source alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.3 NppStatus nppiAlphaCompC_16u_C1R (const Npp16u * *pSrc1*, int *nSrc1Step*, Npp16u *nAlpha1*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp16u *nAlpha2*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiAlphaOp *eAlphaOp*)

One 16-bit unsigned short channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.4 NppStatus nppiAlphaCompC_16u_C3R (const Npp16u * pSrc1, int nSrc1Step, Npp16u nAlpha1, const Npp16u * pSrc2, int nSrc2Step, Npp16u nAlpha2, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Three 16-bit unsigned short channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.5 NppStatus nppiAlphaCompC_16u_C4R (const Npp16u * pSrc1, int nSrc1Step, Npp16u nAlpha1, const Npp16u * pSrc2, int nSrc2Step, Npp16u nAlpha2, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 16-bit unsigned short channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.6 NppStatus nppiAlphaCompC_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, Npp32f nAlpha1, const Npp32f * pSrc2, int nSrc2Step, Npp32f nAlpha2, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit floating point channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0.0 - 1.0).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0.0 - 1.0).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.7 NppStatus nppiAlphaCompC_32s_C1R (const Npp32s * pSrc1, int nSrc1Step, Npp32s nAlpha1, const Npp32s * pSrc2, int nSrc2Step, Npp32s nAlpha2, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit signed integer channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.8 NppStatus nppiAlphaCompC_32u_C1R (const Npp32u * pSrc1, int nSrc1Step, Npp32u nAlpha1, const Npp32u * pSrc2, int nSrc2Step, Npp32u nAlpha2, Npp32u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit unsigned integer channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.9 NppStatus nppiAlphaCompC_8s_C1R (const Npp8s * pSrc1, int nSrc1Step, Npp8s nAlpha1, const Npp8s * pSrc2, int nSrc2Step, Npp8s nAlpha2, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 8-bit signed char channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.10 NppStatus nppiAlphaCompC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, const Npp8u * pSrc2, int nSrc2Step, Npp8u nAlpha2, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 8-bit unsigned char channel image composition with alpha using constant source alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.11 NppStatus nppiAlphaCompC_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, const Npp8u * pSrc2, int nSrc2Step, Npp8u nAlpha2, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 8-bit unsigned char channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.12 NppStatus nppiAlphaCompC_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, const Npp8u * pSrc2, int nSrc2Step, Npp8u nAlpha2, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Three 8-bit unsigned char channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.39.2.13 NppStatus nppiAlphaCompC_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, const Npp8u * pSrc2, int nSrc2Step, Npp8u nAlpha2, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 8-bit unsigned char channel image composition using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
nAlpha2 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40 AlphaPremulC

Premultiplies pixels of an image using a constant alpha value.

Functions

- **NppStatus nppiAlphaPremulC_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C1IR** (**Npp8u** nAlpha1, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 8-bit unsigned char channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C3IR** (**Npp8u** nAlpha1, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Three 8-bit unsigned char channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_C4IR** (**Npp8u** nAlpha1, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel image premultiplication with alpha using constant alpha.
- **NppStatus nppiAlphaPremulC_8u_AC4IR** (**Npp8u** nAlpha1, **Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
Four 8-bit unsigned char channel in place image premultiplication with alpha using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C1R** (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C1IR** (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)
One 16-bit unsigned short channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C3R** (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three 16-bit unsigned short channel image premultiplication using constant alpha.

- **NppStatus nppiAlphaPremulC_16u_C3IR** (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Three 16-bit unsigned short channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C4R** (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_C4IR** (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image premultiplication using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_AC4R** (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image premultiplication with alpha using constant alpha.
- **NppStatus nppiAlphaPremulC_16u_AC4IR** (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image premultiplication with alpha using constant alpha.

7.40.1 Detailed Description

Premultiplies pixels of an image using a constant alpha value.

7.40.2 Function Documentation

7.40.2.1 NppStatus nppiAlphaPremulC_16u_AC4IR (**Npp16u** nAlpha1, **Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel in place image premultiplication with alpha using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.40.2.2 NppStatus nppiAlphaPremulC_16u_AC4R (const **Npp16u** *pSrc1, int nSrc1Step, **Npp16u** nAlpha1, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four 16-bit unsigned short channel image premultiplication with alpha using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

nAlpha1 Image alpha opacity (0 - max channel pixel value).

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.40.2.3 NppStatus nppiAlphaPremulC_16u_C1IR (Npp16u *nAlpha1*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.40.2.4 NppStatus nppiAlphaPremulC_16u_C1R (const Npp16u * *pSrc1*, int *nSrc1Step*, Npp16u *nAlpha1*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 16-bit unsigned short channel image premultiplication using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

nAlpha1 Image alpha opacity (0 - max channel pixel value).

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.40.2.5 NppStatus nppiAlphaPremulC_16u_C3IR (Npp16u *nAlpha1*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.6 NppStatus nppiAlphaPremulC_16u_C3R (const Npp16u * *pSrcI*, int *nSrcIStep*, Npp16u *nAlpha1*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 16-bit unsigned short channel image premultiplication using constant alpha.

Parameters:

pSrcI Source-Image Pointer.
nSrcIStep Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.7 NppStatus nppiAlphaPremulC_16u_C4IR (Npp16u *nAlpha1*, Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.8 NppStatus nppiAlphaPremulC_16u_C4R (const Npp16u * pSrc1, int nSrc1Step, Npp16u nAlpha1, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)

Four 16-bit unsigned short channel image premultiplication using constant alpha.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.9 NppStatus nppiAlphaPremulC_8u_AC4IR (Npp8u nAlpha1, Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel in place image premultiplication with alpha using constant alpha.

Parameters:

- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.10 NppStatus nppiAlphaPremulC_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, Npp8u nAlpha1, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four 8-bit unsigned char channel image premultiplication with alpha using constant alpha.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.11 NppStatus nppiAlphaPremulC_8u_C1IR (Npp8u *nAlpha1*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.12 NppStatus nppiAlphaPremulC_8u_C1R (const Npp8u * *pSrc1*, int *nSrc1Step*, Npp8u *nAlpha1*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

One 8-bit unsigned char channel image premultiplication using constant alpha.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
nAlpha1 Image alpha opacity (0 - max channel pixel value).
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.13 NppStatus nppiAlphaPremulC_8u_C3IR (Npp8u *nAlpha1*, Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel in place image premultiplication using constant alpha.

Parameters:

nAlpha1 Image alpha opacity (0 - max channel pixel value).
pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.14 NppStatus nppiAlphaPremulC_8u_C3R (const Npp8u **pSrc1*, int *nSrc1Step*, Npp8u *nAlpha1*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three 8-bit unsigned char channel image premultiplication using constant alpha.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.15 NppStatus nppiAlphaPremulC_8u_C4IR (Npp8u *nAlpha1*, Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image premultiplication using constant alpha.

Parameters:

- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.40.2.16 NppStatus nppiAlphaPremulC_8u_C4R (const Npp8u **pSrc1*, int *nSrc1Step*, Npp8u *nAlpha1*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image premultiplication using constant alpha.

Parameters:

- pSrc1* Source-Image Pointer.
- nSrc1Step* Source-Image Line Step.
- nAlpha1* Image alpha opacity (0 - max channel pixel value).
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41 AlphaComp

Composite two images using alpha opacity values contained in each image.

Functions

- `NppStatus nppiAlphaComp_8u_AC1R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 8-bit unsigned char channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_8u_AC4R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
Four 8-bit unsigned char channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_8s_AC1R (const Npp8s *pSrc1, int nSrc1Step, const Npp8s *pSrc2, int nSrc2Step, Npp8s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 8-bit signed char channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_16u_AC1R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 16-bit unsigned short channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_16u_AC4R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
Four 16-bit unsigned short channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_16s_AC1R (const Npp16s *pSrc1, int nSrc1Step, const Npp16s *pSrc2, int nSrc2Step, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 16-bit signed short channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_32u_AC1R (const Npp32u *pSrc1, int nSrc1Step, const Npp32u *pSrc2, int nSrc2Step, Npp32u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 32-bit unsigned integer channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_32u_AC4R (const Npp32u *pSrc1, int nSrc1Step, const Npp32u *pSrc2, int nSrc2Step, Npp32u *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
Four 32-bit unsigned integer channel image composition using image alpha values (0 - max channel pixel value).
- `NppStatus nppiAlphaComp_32s_AC1R (const Npp32s *pSrc1, int nSrc1Step, const Npp32s *pSrc2, int nSrc2Step, Npp32s *pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)`
One 32-bit signed integer channel image composition using image alpha values (0 - max channel pixel value).

- **NppStatus nppiAlphaComp_32s_AC4R** (const **Npp32s** ***pSrc1**, int **nSrc1Step**, const **Npp32s** ***pSrc2**, int **nSrc2Step**, **Npp32s** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)
Four 32-bit signed integer channel image composition using image alpha values (0 - max channel pixel value).
- **NppStatus nppiAlphaComp_32f_AC1R** (const **Npp32f** ***pSrc1**, int **nSrc1Step**, const **Npp32f** ***pSrc2**, int **nSrc2Step**, **Npp32f** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)
One 32-bit floating point channel image composition using image alpha values (0.0 - 1.0).
- **NppStatus nppiAlphaComp_32f_AC4R** (const **Npp32f** ***pSrc1**, int **nSrc1Step**, const **Npp32f** ***pSrc2**, int **nSrc2Step**, **Npp32f** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)
Four 32-bit floating point channel image composition using image alpha values (0.0 - 1.0).

7.41.1 Detailed Description

Composite two images using alpha opacity values contained in each image.

7.41.2 Function Documentation

7.41.2.1 NppStatus nppiAlphaComp_16s_AC1R (const **Npp16s** ***pSrc1**, int **nSrc1Step**, const **Npp16s** ***pSrc2**, int **nSrc2Step**, **Npp16s** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)

One 16-bit signed short channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.2 NppStatus nppiAlphaComp_16u_AC1R (const **Npp16u** ***pSrc1**, int **nSrc1Step**, const **Npp16u** ***pSrc2**, int **nSrc2Step**, **Npp16u** ***pDst**, int **nDstStep**, **NppiSize** **oSizeROI**, **NppiAlphaOp** **eAlphaOp**)

One 16-bit unsigned short channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.3 NppStatus nppiAlphaComp_16u_AC4R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 16-bit unsigned short channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.4 NppStatus nppiAlphaComp_32f_AC1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit floating point channel image composition using image alpha values (0.0 - 1.0).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.5 NppStatus nppiAlphaComp_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 32-bit floating point channel image composition using image alpha values (0.0 - 1.0).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.6 NppStatus nppiAlphaComp_32s_AC1R (const Npp32s * pSrc1, int nSrc1Step, const Npp32s * pSrc2, int nSrc2Step, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 32-bit signed integer channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.7 NppStatus nppiAlphaComp_32s_AC4R (const Npp32s * *pSrc1*, int *nSrc1Step*, const Npp32s * *pSrc2*, int *nSrc2Step*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiAlphaOp *eAlphaOp*)

Four 32-bit signed integer channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.8 NppStatus nppiAlphaComp_32u_AC1R (const Npp32u * *pSrc1*, int *nSrc1Step*, const Npp32u * *pSrc2*, int *nSrc2Step*, Npp32u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiAlphaOp *eAlphaOp*)

One 32-bit unsigned integer channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.9 NppStatus nppiAlphaComp_32u_AC4R (const Npp32u * pSrc1, int nSrc1Step, const Npp32u * pSrc2, int nSrc2Step, Npp32u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 32-bit unsigned integer channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.10 NppStatus nppiAlphaComp_8s_AC1R (const Npp8s * pSrc1, int nSrc1Step, const Npp8s * pSrc2, int nSrc2Step, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 8-bit signed char channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.11 NppStatus nppiAlphaComp_8u_AC1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

One 8-bit unsigned char channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.41.2.12 NppStatus nppiAlphaComp_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppiAlphaOp eAlphaOp)

Four 8-bit unsigned char channel image composition using image alpha values (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eAlphaOp alpha-blending operation..

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.42 AlphaPremul

Premultiplies image pixels by image alpha opacity values.

Functions

- `NppStatus nppiAlphaPremul_8u_AC4R (const Npp8u *pSrc1, int nSrc1Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel image premultiplication with pixel alpha (0 - max channel pixel value).
- `NppStatus nppiAlphaPremul_8u_AC4IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 8-bit unsigned char channel in place image premultiplication with pixel alpha (0 - max channel pixel value).
- `NppStatus nppiAlphaPremul_16u_AC4R (const Npp16u *pSrc1, int nSrc1Step, Npp16u *pDst, int nDstStep, NppiSize oSizeROI)`
Four 16-bit unsigned short channel image premultiplication with pixel alpha (0 - max channel pixel value).
- `NppStatus nppiAlphaPremul_16u_AC4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`
Four 16-bit unsigned short channel in place image premultiplication with pixel alpha (0 - max channel pixel value).

7.42.1 Detailed Description

Premultiplies image pixels by image alpha opacity values.

7.42.2 Function Documentation

7.42.2.1 `NppStatus nppiAlphaPremul_16u_AC4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI)`

Four 16-bit unsigned short channel in place image premultiplication with pixel alpha (0 - max channel pixel value).

Parameters:

- `pSrcDst` In-Place Image Pointer.
- `nSrcDstStep` In-Place-Image Line Step.
- `oSizeROI` Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.42.2.2 NppStatus nppiAlphaPremul_16u_AC4R (const Npp16u * *pSrc1*, int *nSrc1Step*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 16-bit unsigned short channel image premultiplication with pixel alpha (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.42.2.3 NppStatus nppiAlphaPremul_8u_AC4IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel in place image premultiplication with pixel alpha (0 - max channel pixel value).

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.42.2.4 NppStatus nppiAlphaPremul_8u_AC4R (const Npp8u * *pSrc1*, int *nSrc1Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four 8-bit unsigned char channel image premultiplication with pixel alpha (0 - max channel pixel value).

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.43 Color and Sampling Conversion

Routines manipulating an image's color model and sampling format.

Modules

- [Color Model Conversion](#)

Routines for converting between various image color models.

- [Color Sampling Format Conversion](#)

Routines for converting between various image color sampling formats.

- [Color Gamma Correction](#)

Routines for correcting image color gamma.

- [Complement Color Key](#)

Routines for performing complement color key replacement.

- [Color Processing](#)

Routines for performing image color manipulation.

7.43.1 Detailed Description

Routines manipulating an image's color model and sampling format.

7.44 Color Model Conversion

Routines for converting between various image color models.

RGBToYUV

RGB to YUV color conversion.

Here is how NPP converts gamma corrected RGB or BGR to YUV. For digital RGB values in the range [0..255], Y has the range [0..255], U varies in the range [-112..+112], and V in the range [-157..+157]. To fit in the range of [0..255], a constant value of 128 is added to computed U and V values, and V is then saturated.

```
Npp32f nY = 0.299F * R + 0.587F * G + 0.114F * B;
Npp32f nU = (0.492F * ((Npp32f)nB - nY)) + 128.0F;
Npp32f nV = (0.877F * ((Npp32f)nR - nY)) + 128.0F;
if (nV > 255.0F)
    nV = 255.0F;
```

- [NppStatus nppiRGBToYUV_8u_C3R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed YUV color conversion.

- [NppStatus nppiRGBToYUV_8u_AC4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed YUV color conversion with alpha, not affecting alpha.

- [NppStatus nppiRGBToYUV_8u_P3R](#) (const [Npp8u](#) *const pSrc[3], int nSrcStep, [Npp8u](#) *pDst[3], int nDstStep, [NppiSize](#) oSizeROI)

3 channel 8-bit unsigned planar RGB to 3 channel 8-bit unsigned planar YUV color conversion.

- [NppStatus nppiRGBToYUV_8u_C3P3R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst[3], int nDstStep, [NppiSize](#) oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YUV color conversion.

- [NppStatus nppiRGBToYUV_8u_AC4P4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst[4], int nDstStep, [NppiSize](#) oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned planar YUV color conversion with alpha.

YUVToRGB

YUV to RGB color conversion.

Here is how NPP converts YUV to gamma corrected RGB or BGR.

```
Npp32f nY = (Npp32f)Y;
Npp32f nU = (Npp32f)U - 128.0F;
Npp32f nV = (Npp32f)V - 128.0F;
Npp32f nR = nY + 1.140F * nV;
if (nR < 0.0F)
```

```

nR = 0.0F;
if (nR > 255.0F)
    nR = 255.0F;
Npp32f nG = nY - 0.394F * nU - 0.581F * nV;
if (nG < 0.0F)
    nG = 0.0F;
if (nG > 255.0F)
    nG = 255.0F;
Npp32f nB = nY + 2.032F * nU;
if (nB < 0.0F)
    nB = 0.0F;
if (nB > 255.0F)
    nB = 255.0F;

```

- **NppStatus nppiYUVToRGB_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed YUV to 3 channel 8-bit unsigned packed RGB color conversion.

- **NppStatus nppiYUVToRGB_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 8-bit packed YUV with alpha to 4 channel 8-bit unsigned packed RGB color conversion with alpha, not affecting alpha.

- **NppStatus nppiYUVToRGB_8u_P3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst[3], int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YUV to 3 channel 8-bit unsigned planar RGB color conversion.

- **NppStatus nppiYUVToRGB_8u_P3C3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YUV to 3 channel 8-bit unsigned packed RGB color conversion.

RGBToYUV422

RGB to YUV422 color conversion.

- **NppStatus nppiRGBToYUV422_8u_C3C2R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 2 channel 8-bit unsigned packed YUV422 color conversion.

- **NppStatus nppiRGBToYUV422_8u_P3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar RGB to 3 channel 8-bit unsigned planar YUV422 color conversion.

- **NppStatus nppiRGBToYUV422_8u_C3P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YUV422 color conversion.

YUV422ToRGB

YUV422 to RGB color conversion.

- **NppStatus nppiYUV422ToRGB_8u_C2C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
2 channel 8-bit unsigned packed YUV422 to 3 channel 8-bit unsigned packed RGB color conversion.
- **NppStatus nppiYUV422ToRGB_8u_P3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst[3], int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YUV422 to 3 channel 8-bit unsigned planar RGB color conversion.
- **NppStatus nppiYUV422ToRGB_8u_P3C3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YUV422 to 3 channel 8-bit unsigned packed RGB color conversion.
- **NppStatus nppiYUV422ToRGB_8u_P3AC4R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YUV422 to 4 channel 8-bit unsigned packed RGB color conversion with alpha.

RGBToYUV420

RGB to YUV420 color conversion.

- **NppStatus nppiRGBToYUV420_8u_P3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar RGB to 3 channel 8-bit unsigned planar YUV420 color conversion.
- **NppStatus nppiRGBToYUV420_8u_C3P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)
3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YUV420 color conversion.

YUV420ToRGB

YUV420 to RGB color conversion.

- **NppStatus nppiYUV420ToRGB_8u_P3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst[3], int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YUV420 to 3 channel 8-bit unsigned planar RGB color conversion.
- **NppStatus nppiYUV420ToRGB_8u_P3C3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YUV420 to 3 channel 8-bit unsigned packed RGB color conversion.
- **NppStatus nppiYUV420ToRGB_8u_P3AC4R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YUV420 to 4 channel 8-bit unsigned packed RGB color conversion with alpha.

BGRToYUV420

BGR to YUV420 color conversion.

- **NppStatus nppiBGRToYUV420_8u_AC4P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppSize** oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YUV420 color conversion.

YUV420ToBGR

YUV420 to BGR color conversion.

- **NppStatus nppiYUV420ToBGR_8u_P3C3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI)

3 channel 8-bit unsigned planar YUV420 to 3 channel 8-bit unsigned packed BGR color conversion.

RGBToYCbCr

RGB to YCbCr color conversion.

Here is how NPP converts gamma corrected RGB or BGR to YCbCr. In the YCbCr model, Y is defined to have a nominal range [16..235], while Cb and Cr are defined to have a range [16..240], with the value of 128 as corresponding to zero.

```
Npp32f nY = 0.257F * R + 0.504F * G + 0.098F * B + 16.0F;
Npp32f nCb = -0.148F * R - 0.291F * G + 0.439F * B + 128.0F;
Npp32f nCr = 0.439F * R - 0.368F * G - 0.071F * B + 128.0F;
```

- **NppStatus nppiRGBToYCbCr_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel unsigned 8-bit packed YCbCr color conversion.
- **NppStatus nppiRGBToYCbCr_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel unsigned 8-bit packed YCbCr with alpha color conversion, not affecting alpha.
- **NppStatus nppiRGBToYCbCr_8u_P3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst[3], int nDstStep, **NppSize** oSizeROI)

3 channel planar 8-bit unsigned RGB to 3 channel planar 8-bit YCbCr color conversion.
- **NppStatus nppiRGBToYCbCr_8u_C3P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int nDstStep, **NppSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel unsigned 8-bit planar YCbCr color conversion.
- **NppStatus nppiRGBToYCbCr_8u_AC4P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int nDstStep, **NppSize** oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 3 channel 8-bit unsigned planar YCbCr color conversion.

YCbCrToRGB

YCbCr to RGB color conversion.

Here is how NPP converts YCbCr to gamma corrected RGB or BGR. The output RGB values are saturated to the range [0..255].

```
Npp32f nY = 1.164F * ((Npp32f)Y - 16.0F);
Npp32f nR = ((Npp32f)Cr - 128.0F);
Npp32f nB = ((Npp32f)Cb - 128.0F);
Npp32f nG = nY - 0.813F * nR - 0.392F * nB;
if (nG > 255.0F)
    nG = 255.0F;
nR = nY + 1.596F * nR;
if (nR > 255.0F)
    nR = 255.0F;
nB = nY + 2.017F * nB;
if (nB > 255.0F)
    nB = 255.0F;
```

- **NppStatus nppiYCbCrToRGB_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed YCbCr to 3 channel 8-bit unsigned packed RGB color conversion.

- **NppStatus nppiYCbCrToRGB_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed YCbCr with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion, not affecting alpha.

- **NppStatus nppiYCbCrToRGB_8u_P3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst[3], int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr to 3 channel 8-bit unsigned planar RGB color conversion.

- **NppStatus nppiYCbCrToRGB_8u_P3C3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr to 3 channel 8-bit unsigned packed RGB color conversion.

- **NppStatus nppiYCbCrToRGB_8u_P3C4R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nAval)

3 channel 8-bit unsigned planar YCbCr to 4 channel 8-bit unsigned packed RGB color conversion with constant alpha.

YCbCrToBGR

YCbCr to BGR color conversion.

- **NppStatus nppiYCbCrToBGR_8u_P3C3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr to 3 channel 8-bit unsigned packed BGR color conversion.

- **NppStatus nppiYCbCrToBGR_8u_P3C4R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nAval)

3 channel 8-bit unsigned planar YCbCr to 4 channel 8-bit unsigned packed BGR color conversion with constant alpha.

YCbCrToBGR_709CSC

YCbCr to BGR_709CSC color conversion.

- **NppStatus nppiYCbCrToBGR_709CSC_8u_P3C3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr to 3 channel 8-bit unsigned packed BGR_709CSC color conversion.

- **NppStatus nppiYCbCrToBGR_709CSC_8u_P3C4R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nAval)

3 channel 8-bit unsigned planar YCbCr to 4 channel 8-bit unsigned packed BGR_709CSC color conversion with constant alpha.

RGBToYCbCr422

RGB to YCbCr422 color conversion.

- **NppStatus nppiRGBToYCbCr422_8u_C3C2R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 2 channel 8-bit unsigned packed YCbCr422 color conversion.

- **NppStatus nppiRGBToYCbCr422_8u_C3P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YCbCr422 color conversion.

- **NppStatus nppiRGBToYCbCr422_8u_P3C2R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar RGB to 2 channel 8-bit unsigned packed YCbCr422 color conversion.

YCbCr422ToRGB

YCbCr422 to RGB color conversion.

- **NppStatus nppiYCbCr422ToRGB_8u_C2C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned packed RGB color conversion.

- **NppStatus nppiYCbCr422ToRGB_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int nDstStep, **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar RGB color conversion.

- **NppStatus nppiYCbCr422ToRGB_8u_P3C3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr422 to 3 channel 8-bit unsigned packed RGB color conversion.

RGBToYCrCb422

RGB to YCrCb422 color conversion.

- `NppStatus nppiRGBToYCrCb422_8u_C3C2R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

3 channel 8-bit unsigned packed RGB to 2 channel 8-bit unsigned packed YCrCb422 color conversion.

- `NppStatus nppiRGBToYCrCb422_8u_P3C2R` (const `Npp8u *const pSrc[3]`, int `nSrcStep`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

3 channel 8-bit unsigned planar RGB to 2 channel 8-bit unsigned packed YCrCb422 color conversion.

YCrCb422ToRGB

YCrCb422 to RGB color conversion.

- `NppStatus nppiYCrCb422ToRGB_8u_C2C3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned packed RGB color conversion.

- `NppStatus nppiYCrCb422ToRGB_8u_C2P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `nDstStep`, `NppiSize oSizeROI`)

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned planar RGB color conversion.

BGRToYCbCr422

BGR to YCbCr422 color conversion.

- `NppStatus nppiBGRToYCbCr422_8u_C3C2R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

3 channel 8-bit unsigned packed BGR to 2 channel 8-bit unsigned packed YCrCb422 color conversion.

- `NppStatus nppiBGRToYCbCr422_8u_AC4C2R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

4 channel 8-bit unsigned packed BGR with alpha to 2 channel 8-bit unsigned packed YCrCb422 color conversion.

- `NppStatus nppiBGRToYCbCr422_8u_C3P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCbCr422 color conversion.

- `NppStatus nppiBGRToYCbCr422_8u_AC4P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr422 color conversion.

YCbCr422ToBGR

YCbCr422 to BGR color conversion.

- **NppStatus nppiYCbCr422ToBGR_8u_C2C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned packed BGR color conversion.
- **NppStatus nppiYCbCr422ToBGR_8u_C2C4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nAval)
2 channel 8-bit unsigned packed YCrCb422 to 4 channel 8-bit unsigned packed BGR color conversion with constant alpha.
- **NppStatus nppiYCbCr422ToBGR_8u_P3C3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YCbCr422 to 3 channel 8-bit unsigned packed BGR color conversion.

RGBToCbYCr422

RGB to CbYCr422 color conversion.

- **NppStatus nppiRGBToCbYCr422_8u_C3C2R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned packed RGB to 2 channel 8-bit unsigned packed CbYCr422 color conversion.
- **NppStatus nppiRGBToCbYCr422Gamma_8u_C3C2R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned packed RGB first gets forward gamma corrected then converted to 2 channel 8-bit unsigned packed CbYCr422 color conversion.

CbYCr422ToRGB

CbYCr422 to RGB color conversion.

- **NppStatus nppiCbYCr422ToRGB_8u_C2C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned packed RGB color conversion.

BGRToCbYCr422

BGR to CbYCr422 color conversion.

- **NppStatus nppiBGRToCbYCr422_8u_AC4C2R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
4 channel 8-bit unsigned packed BGR with alpha to 2 channel 8-bit unsigned packed CbYCr422 color conversion.

BGRToCbYCr422_709HDTV

BGR to CbYCr422_709HDTV color conversion.

- `NppStatus nppiBGRToCbYCr422_709HDTV_8u_C3C2R` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

3 channel 8-bit unsigned packed BGR to 2 channel 8-bit unsigned packed CbYCr422_709HDTV color conversion.
- `NppStatus nppiBGRToCbYCr422_709HDTV_8u_AC4C2R` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

4 channel 8-bit unsigned packed BGR with alpha to 2 channel 8-bit unsigned packed CbYCr422_709HDTV color conversion.

CbYCr422ToBGR

CbYCr422 to BGR color conversion.

- `NppStatus nppiCbYCr422ToBGR_8u_C2C4R` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `Npp8u` `nAval`)

2 channel 8-bit unsigned packed CbYCr422 to 4 channel 8-bit unsigned packed BGR color conversion with alpha.

CbYCr422ToBGR_709HDTV

CbYCr422 to BGR_709HDTV color conversion.

- `NppStatus nppiCbYCr422ToBGR_709HDTV_8u_C2C3R` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned packed BGR_709HDTV color conversion.
- `NppStatus nppiCbYCr422ToBGR_709HDTV_8u_C2C4R` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `Npp8u` `nAval`)

2 channel 8-bit unsigned packed CbYCr422 to 4 channel 8-bit unsigned packed BGR_709HDTV color conversion with constant alpha.

RGBToYCbCr420

RGB to YCbCr420 color conversion.

- `NppStatus nppiRGBToYCbCr420_8u_C3P3R` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst[3]`, int `rDstStep[3]`, `NppiSize` `oSizeROI`)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YCbCr420 color conversion.

YCbCr420ToRGB

YCbCr420 to RGB color conversion.

- **NppStatus nppiYCbCr420ToRGB_8u_P3C3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned packed RGB color conversion.

RGBToYCrCb420

RGB to YCrCb420 color conversion.

- **NppStatus nppiRGBToYCrCb420_8u_AC4P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)
4 channel 8-bit unsigned packed RGB with alpha to 3 channel 8-bit unsigned planar YCrCb420 color conversion.

YCrCb420ToRGB

YCrCb420 to RGB color conversion.

- **NppStatus nppiYCrCb420ToRGB_8u_P3C4R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nAval)
3 channel 8-bit unsigned planar YCrCb420 to 4 channel 8-bit unsigned packed RGB color conversion with constant alpha.

BGRToYCbCr420

BGR to YCbCr420 color conversion.

- **NppStatus nppiBGRToYCbCr420_8u_C3P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)
3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCbCr420 color conversion.
- **NppStatus nppiBGRToYCbCr420_8u_AC4P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)
4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr420 color conversion.

BGRToYCbCr420_709CSC

BGR to YCbCr420_709CSC color conversion.

- **NppStatus nppiBGRToYCbCr420_709CSC_8u_C3P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCbCr420_709CSC color conversion.

- **NppStatus nppiBGRToYCbCr420_709CSC_8u_AC4P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr420_709CSC color conversion.

BGRToYCbCr420_709HDTV

BGR to YCbCr420_709HDTV color conversion.

- **NppStatus nppiBGRToYCbCr420_709HDTV_8u_AC4P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr420_709HDTV color conversion.

BGRToYCrCb420_709CSC

BGR to YCrCb420_709CSC color conversion.

- **NppStatus nppiBGRToYCrCb420_709CSC_8u_C3P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCrCb420_709CSC color conversion.

- **NppStatus nppiBGRToYCrCb420_709CSC_8u_AC4P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCrCb420_709CSC color conversion.

YCbCr420ToBGR

YCbCr420 to BGR color conversion.

- **NppStatus nppiYCbCr420ToBGR_8u_P3C3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned packed BGR color conversion.

- **NppStatus nppiYCbCr420ToBGR_8u_P3C4R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nAval)

3 channel 8-bit unsigned planar YCbCr420 to 4 channel 8-bit unsigned packed BGR color conversion with constant alpha.

YCbCr420ToBGR_709CSC

YCbCr420_709CSC to BGR color conversion.

- `NppStatus nppiYCbCr420ToBGR_709CSC_8u_P3C3R` (const `Npp8u *const pSrc[3]`, int `rSrcStep[3]`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

3 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned packed BGR_709CSC color conversion.

YCbCr420ToBGR_709HDTV

YCbCr420_709HDTV to BGR color conversion.

- `NppStatus nppiYCbCr420ToBGR_709HDTV_8u_P3C4R` (const `Npp8u *const pSrc[3]`, int `rSrcStep[3]`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, `Npp8u nAval`)

3 channel 8-bit unsigned planar YCbCr420 to 4 channel 8-bit unsigned packed BGR_709HDTV color conversion with constant alpha.

BGRToYCrCb420

BGR to YCrCb420 color conversion.

- `NppStatus nppiBGRToYCrCb420_8u_C3P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCrCb420 color conversion.

- `NppStatus nppiBGRToYCrCb420_8u_AC4P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCrCb420 color conversion.

BGRToYCbCr411

BGR to YCbCr411 color conversion.

- `NppStatus nppiBGRToYCbCr411_8u_C3P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCbCr411 color conversion.

- `NppStatus nppiBGRToYCbCr411_8u_AC4P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr411 color conversion.

YCbCr411ToBGR

YCbCr411 to BGR color conversion.

- **NppStatus nppiYCbCr411ToBGR_8u_P3C3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned packed BGR color conversion.

- **NppStatus nppiYCbCr411ToBGR_8u_P3C4R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nAval)

3 channel 8-bit unsigned planar YCbCr411 to 4 channel 8-bit unsigned packed BGR color conversion with constant alpha.

RGBToXYZ

RGB to XYZ color conversion.

Here is how NPP converts gamma corrected RGB or BGR to XYZ.

```

Npp32f nNormalizedR = (Npp32f)R * 0.003921569F; // / 255.0F
Npp32f nNormalizedG = (Npp32f)G * 0.003921569F;
Npp32f nNormalizedB = (Npp32f)B * 0.003921569F;
Npp32f nX = 0.412453F * nNormalizedR + 0.35758F * nNormalizedG + 0.180423F * nNormalizedB;
if (nX > 1.0F)
    nX = 1.0F;
Npp32f nY = 0.212671F * nNormalizedR + 0.71516F * nNormalizedG + 0.072169F * nNormalizedB;
if (nY > 1.0F)
    nY = 1.0F;
Npp32f nZ = 0.019334F * nNormalizedR + 0.119193F * nNormalizedG + 0.950227F * nNormalizedB;
if (nZ > 1.0F)
    nZ = 1.0F;
X = (Npp8u)(nX * 255.0F);
Y = (Npp8u)(nY * 255.0F);
Z = (Npp8u)(nZ * 255.0F);

```

- **NppStatus nppiRGBToXYZ_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed XYZ color conversion.

- **NppStatus nppiRGBToXYZ_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed XYZ with alpha color conversion.

XYZToRGB

XYZ to RGB color conversion.

Here is how NPP converts XYZ to gamma corrected RGB or BGR. The code assumes that X,Y, and Z values are in the range [0..1].

```

Npp32f nNormalizedX = (Npp32f)X * 0.003921569F; // / 255.0F
Npp32f nNormalizedY = (Npp32f)Y * 0.003921569F;

```

```

Npp32f nNormalizedZ = (Npp32f)Z * 0.003921569F;
Npp32f nR = 3.240479F * nNormalizedX - 1.53715F * nNormalizedY - 0.498535F * nNormalizedZ;
if (nR > 1.0F)
    nR = 1.0F;
Npp32f nG = -0.969256F * nNormalizedX + 1.875991F * nNormalizedY + 0.041556F * nNormalizedZ;
if (nG > 1.0F)
    nG = 1.0F;
Npp32f nB = 0.055648F * nNormalizedX - 0.204043F * nNormalizedY + 1.057311F * nNormalizedZ;
if (nB > 1.0F)
    nB = 1.0F;
R = (Npp8u)(nR * 255.0F);
G = (Npp8u)(nG * 255.0F);
B = (Npp8u)(nB * 255.0F);

```

- **NppStatus nppiXYZToRGB_8u_C3R** (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI)

3 channel 8-bit unsigned packed XYZ to 3 channel 8-bit unsigned packed RGB color conversion.

- **NppStatus nppiXYZToRGB_8u_AC4R** (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI)

4 channel 8-bit unsigned packed XYZ with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

RGBToLUV

RGB to LUV color conversion.

Here is how NPP converts gamma corrected RGB or BGR to CIE LUV using the CIE XYZ D65 white point with a Y luminance of 1.0. The computed values of the L component are in the range [0..100], U component in the range [-134..220], and V component in the range [-140..122]. The code uses cbrtf() the 32 bit floating point cube root math function.

```

// use CIE D65 chromaticity coordinates
#define nCIE_XYZ_D65_xn 0.312713F
#define nCIE_XYZ_D65_yn 0.329016F
#define nn_DIVISOR (-2.0F * nCIE_XYZ_D65_xn + 12.0F * nCIE_XYZ_D65_yn + 3.0F)
#define nun (4.0F * nCIE_XYZ_D65_xn / nn_DIVISOR)
#define nvn (9.0F * nCIE_XYZ_D65_yn / nn_DIVISOR)

// First convert to XYZ
Npp32f nNormalizedR = (Npp32f)R * 0.003921569F; // / 255.0F
Npp32f nNormalizedG = (Npp32f)G * 0.003921569F;
Npp32f nNormalizedB = (Npp32f)B * 0.003921569F;
Npp32f nX = 0.412453F * nNormalizedR + 0.35758F * nNormalizedG + 0.180423F * nNormalizedB;
Npp32f nY = 0.212671F * nNormalizedR + 0.71516F * nNormalizedG + 0.072169F * nNormalizedB;
Npp32f nZ = 0.019334F * nNormalizedR + 0.119193F * nNormalizedG + 0.950227F * nNormalizedB;
// Now calculate LUV from the XYZ value
Npp32f nTemp = nX + 15.0F * nY + 3.0F * nZ;
Npp32f nu = 4.0F * nX / nTemp;
Npp32f nv = 9.0F * nY / nTemp;
Npp32f nL = 116.0F * cbrtf(nY) - 16.0F;
if (nL < 0.0F)
    nL = 0.0F;
if (nL > 100.0F)
    nL = 100.0F;
nTemp = 13.0F * nL;
Npp32f nU = nTemp * (nu - nun);
if (nU < -134.0F)
    nU = -134.0F;
if (nU > 220.0F)

```

```

nU = 220.0F;
Npp32f nV = nTemp * (nv - nvn);
if (nV < -140.0F)
    nV = -140.0F;
if (nV > 122.0F)
    nV = 122.0F;
L = (Npp8u) (nL * 255.0F * 0.01F); // / 100.0F
U = (Npp8u) ((nU + 134.0F) * 255.0F * 0.0028249F); // / 354.0F
V = (Npp8u) ((nV + 140.0F) * 255.0F * 0.0038168F); // / 262.0F

```

- **NppStatus nppiRGBToLUV_8u_C3R** (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed LUV color conversion.

- **NppStatus nppiRGBToLUV_8u_AC4R** (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed LUV with alpha color conversion.

LUVToRGB

LUV to RGB color conversion.

Here is how NPP converts CIE LUV to gamma corrected RGB or BGR using the CIE XYZ D65 white point with a Y luminance of 1.0. The code uses powf() the 32 bit floating point power math function.

```

// use CIE D65 chromaticity coordinates
#define nCIE_XYZ_D65_xn 0.312713F
#define nCIE_XYZ_D65_yn 0.329016F
#define nn_DIVISOR (-2.0F * nCIE_XYZ_D65_xn + 12.0F * nCIE_XYZ_D65_yn + 3.0F)
#define nun (4.0F * nCIE_XYZ_D65_xn / nn_DIVISOR)
#define nvn (9.0F * nCIE_XYZ_D65_yn / nn_DIVISOR)

// First convert normalized LUV back to original CIE LUV range
Npp32f nL = (Npp32f)L * 100.0F * 0.003921569F; // / 255.0F
Npp32f nU = ((Npp32f)U * 354.0F * 0.003921569F) - 134.0F;
Npp32f nV = ((Npp32f)V * 262.0F * 0.003921569F) - 140.0F;
// Now convert LUV to CIE XYZ
Npp32f nTemp = 13.0F * nL;
Npp32f nu = nU / nTemp + nun;
Npp32f nv = nV / nTemp + nvn;
Npp32f nNormalizedY;
if (nL > 7.9996248F)
{
    nNormalizedY = (nL + 16.0F) * 0.008621F; // / 116.0F
    nNormalizedY = powf(nNormalizedY, 3.0F);
}
else
{
    nNormalizedY = nL * 0.001107F; // / 903.3F
}
Npp32f nNormalizedX = (-9.0F * nNormalizedY * nu) / ((nu - 4.0F) * nv - nu * nv);
Npp32f nNormalizedZ = (9.0F * nNormalizedY - 15.0F * nv * nNormalizedY - nv * nNormalizedX) / (3.0F * nv);
Npp32f nR = 3.240479F * nNormalizedX - 1.53715F * nNormalizedY - 0.498535F * nNormalizedZ;
if (nR > 1.0F)
    nR = 1.0F;
if (nR < 0.0F)
    nR = 0.0F;
Npp32f nG = -0.969256F * nNormalizedX + 1.875991F * nNormalizedY + 0.041556F * nNormalizedZ;
if (nG > 1.0F)
    nG = 1.0F;

```

```

if (nG < 0.0F)
    nG = 0.0F;
Npp32f nB = 0.055648F * nNormalizedX - 0.204043F * nNormalizedY + 1.057311F * nNormalizedZ;
if (nB > 1.0F)
    nB = 1.0F;
if (nB < 0.0F)
    nB = 0.0F;
R = (Npp8u)(nR * 255.0F);
G = (Npp8u)(nG * 255.0F);
B = (Npp8u)(nB * 255.0F);

```

- **NppStatus nppiLUVToRGB_8u_C3R** (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed LUV to 3 channel 8-bit unsigned packed RGB color conversion.

- **NppStatus nppiLUVToRGB_8u_AC4R** (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed LUV with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

BGRToLab

BGR to Lab color conversion.

This is how NPP converts gamma corrected BGR or RGB to Lab using the CIE Lab D65 white point with a Y luminance of 1.0. The computed values of the L component are in the range [0..100], a and b component values are in the range [-128..127]. The code uses cbrtf() the 32 bit floating point cube root math function.

```

// use CIE Lab chromaticity coordinates
#define nCIE_LAB_D65_xn 0.950455F
#define nCIE_LAB_D65_yn 1.0F
#define nCIE_LAB_D65_zn 1.088753F
// First convert to XYZ
Npp32f nNormalizedR = (Npp32f)R * 0.003921569F; // / 255.0F
Npp32f nNormalizedG = (Npp32f)G * 0.003921569F;
Npp32f nNormalizedB = (Npp32f)B * 0.003921569F;
Npp32f nX = 0.412453F * nNormalizedR + 0.35758F * nNormalizedG + 0.180423F * nNormalizedB;
Npp32f nY = 0.212671F * nNormalizedR + 0.71516F * nNormalizedG + 0.072169F * nNormalizedB;
Npp32f nZ = 0.019334F * nNormalizedR + 0.119193F * nNormalizedG + 0.950227F * nNormalizedB;
Npp32f nL = cbrtf(nY);
Npp32f nA;
Npp32f nB;
Npp32f nfX = nX * 1.052128F; // / nCIE_LAB_D65_xn;
Npp32f nfY = nY;
Npp32f nfZ = nZ * 0.918482F; // / nCIE_LAB_D65_zn;
if (nfY > 0.008856F)
{
    nfY = nL - 16.0F;
    nL = 116.0F * nL - 16.0F;
}
else
{
    nfY = 7.787F * nY + 16.0F * 0.008621F; // / 116.0F
}
if (nfX > 0.008856F)
{
    nA = cbrtf(nfX) - 16.0F;
}
else
{

```

```

    nA = 7.787F * nfX + 16.0F * 0.008621F; // / 116.0F
}
nA = 500.0F * (nA - nfY);
if (nfZ > 0.008856F)
{
    nB = cbrtf(nfZ) - 16.0F;
}
else
{
    nB = 7.787F * nfZ + 16.0F * 0.008621F; // / 116.0F
}
nB = 200.0F * (nfY - nB);
// Now scale Lab range
nL = nL * 255.0F * 0.01F; // / 100.0F
nA = nA + 128.0F;
nB = nB + 128.0F;
L = (Npp8u)nL;
a = (Npp8u)nA;
b = (Npp8u)nB;

```

- **NppStatus nppiBGRTolab_8u_C3R** (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned packed Lab color conversion.

LabToBGR

Lab to BGR color conversion.

This is how NPP converts Lab to gamma corrected BGR or RGB using the CIE Lab D65 white point with a Y luminance of 1.0. The code uses powf() the 32 bit floating point power math function.

```

// use CIE Lab chromaticity coordinates
#define nCIE_LAB_D65_xn 0.950455F
#define nCIE_LAB_D65_yn 1.0F
#define nCIE_LAB_D65_zn 1.088753F
// First convert Lab back to original range then to CIE XYZ
Npp32f nL = (Npp32f)L * 100.0F * 0.003921569F; // / 255.0F
Npp32f nA = (Npp32f)a - 128.0F;
Npp32f nB = (Npp32f)b - 128.0F;
Npp32f nP = (nL + 16.0F) * 0.008621F; // / 116.0F
Npp32f nNormalizedY = nP * nP * nP; // powf(nP, 3.0F);
Npp32f nNormalizedX = nCIE_LAB_D65_xn * powf((nP + nA * 0.002F), 3.0F); // / 500.0F
Npp32f nNormalizedZ = nCIE_LAB_D65_zn * powf((nP - nB * 0.005F), 3.0F); // / 200.0F
Npp32f nR = 3.240479F * nNormalizedX - 1.53715F * nNormalizedY - 0.498535F * nNormalizedZ;
if (nR > 1.0F)
    nR = 1.0F;
Npp32f nG = -0.969256F * nNormalizedX + 1.875991F * nNormalizedY + 0.041556F * nNormalizedZ;
if (nG > 1.0F)
    nG = 1.0F;
nB = 0.055648F * nNormalizedX - 0.204043F * nNormalizedY + 1.057311F * nNormalizedZ;
if (nB > 1.0F)
    nB = 1.0F;
R = (Npp8u)(nR * 255.0F);
G = (Npp8u)(nG * 255.0F);
B = (Npp8u)(nB * 255.0F);

```

- **NppStatus nppiLabToBGR_8u_C3R** (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed Lab to 3 channel 8-bit unsigned packed BGR color conversion.

RGBToYCC

RGB to PhotoYCC color conversion.

This is how NPP converts gamma corrected BGR or RGB to PhotoYCC. The computed Y, C1, C2 values are then quantized and converted to fit in the range [0..1] before expanding to 8 bits.

```
Npp32f nNormalizedR = (Npp32f)R * 0.003921569F; // / 255.0F
Npp32f nNormalizedG = (Npp32f)G * 0.003921569F;
Npp32f nNormalizedB = (Npp32f)B * 0.003921569F;
Npp32f nY = 0.299F * nNormalizedR + 0.587F * nNormalizedG + 0.114F * nNormalizedB;
Npp32f nC1 = nNormalizedB - nY;
nC1 = 111.4F * 0.003921569F * nC1 + 156.0F * 0.003921569F;
Npp32f nC2 = nNormalizedR - nY;
nC2 = 135.64F * 0.003921569F * nC2 + 137.0F * 0.003921569F;
nY = 1.0F * 0.713267F * nY; // / 1.402F
Y = (Npp8u)(nY * 255.0F);
C1 = (Npp8u)(nC1 * 255.0F);
C2 = (Npp8u)(nC2 * 255.0F);
```

- **NppStatus nppiRGBToYCC_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed YCC color conversion.

- **NppStatus nppiRGBToYCC_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed YCC with alpha color conversion.

YCCToRGB

PhotoYCC to RGB color conversion.

This is how NPP converts PhotoYCC to gamma corrected RGB or BGR.

```
Npp32f nNormalizedY = ((Npp32f)Y * 0.003921569F) * 1.3584F; // / 255.0F
Npp32f nNormalizedC1 = (((Npp32f)C1 * 0.003921569F) - 156.0F * 0.003921569F) * 2.2179F;
Npp32f nNormalizedC2 = (((Npp32f)C2 * 0.003921569F) - 137.0F * 0.003921569F) * 1.8215F;
Npp32f nR = nNormalizedY + nNormalizedC2;
if (nR > 1.0F)
    nR = 1.0F;
Npp32f nG = nNormalizedY - 0.194F * nNormalizedC1 - 0.509F * nNormalizedC2;
if (nG > 1.0F)
    nG = 1.0F;
Npp32f nB = nNormalizedY + nNormalizedC1;
if (nB > 1.0F)
    nB = 1.0F;
R = (Npp8u)(nR * 255.0F);
G = (Npp8u)(nG * 255.0F);
B = (Npp8u)(nB * 255.0F);
```

- **NppStatus nppiYCCToRGB_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed YCC to 3 channel 8-bit unsigned packed RGB color conversion.

- **NppStatus nppiYCCToRGB_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed YCC with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

RGBToHLS

RGB to HLS color conversion.

This is how NPP converts gamma corrected RGB or BGR to HLS. This code uses the fmaxf() and fminf() 32 bit floating point math functions.

```
Npp32f nNormalizedR = (Npp32f)R * 0.003921569F; // / 255.0F
Npp32f nNormalizedG = (Npp32f)G * 0.003921569F;
Npp32f nNormalizedB = (Npp32f)B * 0.003921569F;
Npp32f nS;
Npp32f nH;
// Lightness
Npp32f nMax = fmaxf(nNormalizedR, nNormalizedG);
nMax = fmaxf(nMax, nNormalizedB);
Npp32f nMin = fminf(nNormalizedR, nNormalizedG);
nMin = fminf(nMin, nNormalizedB);
Npp32f nL = (nMax + nMin) * 0.5F;
Npp32f nDivisor = nMax - nMin;
// Saturation
if (nDivisor == 0.0F) // achromatics case
{
    nS = 0.0F;
    nH = 0.0F;
}
else // chromatics case
{
    if (nL > 0.5F)
        nS = nDivisor / (1.0F - (nMax + nMin - 1.0F));
    else
        nS = nDivisor / (nMax + nMin);
}
// Hue
Npp32f nCr = (nMax - nNormalizedR) / nDivisor;
Npp32f nCg = (nMax - nNormalizedG) / nDivisor;
Npp32f nCb = (nMax - nNormalizedB) / nDivisor;
if (nNormalizedR == nMax)
    nH = nCb - nCg;
else if (nNormalizedG == nMax)
    nH = 2.0F + nCr - nCb;
else if (nNormalizedB == nMax)
    nH = 4.0F + nCg - nCr;
nH = nH * 0.166667F; // / 6.0F
if (nH < 0.0F)
    nH = nH + 1.0F;
H = (Npp8u)(nH * 255.0F);
L = (Npp8u)(nL * 255.0F);
S = (Npp8u)(nS * 255.0F);
```

- [NppStatus nppiRGBToHLS_8u_C3R](#) (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed HLS color conversion.

- [NppStatus nppiRGBToHLS_8u_AC4R](#) (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed HLS with alpha color conversion.

HLSToRGB

HLS to RGB color conversion.

This is how NPP converts HLS to gamma corrected RGB or BGR.

```
Npp32f nNormalizedH = (Npp32f)H * 0.003921569F; // / 255.0F
Npp32f nNormalizedL = (Npp32f)L * 0.003921569F;
Npp32f nNormalizedS = (Npp32f)S * 0.003921569F;
Npp32f nM1;
Npp32f nM2;
Npp32f nR;
Npp32f nG;
Npp32f nB;
Npp32f nh = 0.0F;
if (nNormalizedL <= 0.5F)
    nM2 = nNormalizedL * (1.0F + nNormalizedS);
else
    nM2 = nNormalizedL + nNormalizedS - nNormalizedL * nNormalizedS;
nM1 = 2.0F * nNormalizedL - nM2;
if (nNormalizedS == 0.0F)
    nR = nG = nB = nNormalizedL;
else
{
    nh = nNormalizedH + 0.3333F;
    if (nh > 1.0F)
        nh -= 1.0F;
}
Npp32f nMDiff = nM2 - nM1;
if (0.6667F < nh)
    nR = nM1;
else
{
    if (nh < 0.16667F)
        nR = (nM1 + nMDiff * nh * 6.0F); // / 0.16667F
    else if (nh < 0.5F)
        nR = nM2;
    else
        nR = nM1 + nMDiff * (0.66667F - nh) * 6.0F; // / 0.16667F
}
if (nR > 1.0F)
    nR = 1.0F;
nh = nNormalizedH;
if (0.6667F < nh)
    nG = nM1;
else
{
    if (nh < 0.16667F)
        nG = (nM1 + nMDiff * nh * 6.0F); // / 0.16667F
    else if (nh < 0.5F)
        nG = nM2;
    else
        nG = nM1 + nMDiff * (0.66667F - nh) * 6.0F; // / 0.16667F
}
if (nG > 1.0F)
    nG = 1.0F;
nh = nNormalizedH - 0.3333F;
if (nh < 0.0F)
    nh += 1.0F;
if (0.6667F < nh)
    nB = nM1;
else
{
    if (nh < 0.16667F)
        nB = (nM1 + nMDiff * nh * 6.0F); // / 0.16667F
    else if (nh < 0.5F)
        nB = nM2;
```

```

        else
            nB = nM1 + nMDiff * (0.6667F - nh) * 6.0F; // / 0.1667F
    }
    if (nB > 1.0F)
        nB = 1.0F;
R = (Npp8u)(nR * 255.0F);
G = (Npp8u)(nG * 255.0F);
B = (Npp8u)(nB * 255.0F);

```

- [NppStatus nppiHLSToRGB_8u_C3R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed HLS to 3 channel 8-bit unsigned packed RGB color conversion.

- [NppStatus nppiHLSToRGB_8u_AC4R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed HLS with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

BGRToHLS

BGR to HLS color conversion.

- [NppStatus nppiBGRToHLS_8u_AC4R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 4 channel 8-bit unsigned packed HLS with alpha color conversion.

- [NppStatus nppiBGRToHLS_8u_C3P3R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst[3], int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar HLS color conversion.

- [NppStatus nppiBGRToHLS_8u_AC4P4R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst[4], int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 4 channel 8-bit unsigned planar HLS with alpha color conversion.

- [NppStatus nppiBGRToHLS_8u_P3C3R](#) (const Npp8u *const pSrc[3], int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned planar BGR to 3 channel 8-bit unsigned packed HLS color conversion.

- [NppStatus nppiBGRToHLS_8u_AP4C4R](#) (const Npp8u *const pSrc[4], int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned planar BGR with alpha to 4 channel 8-bit unsigned packed HLS with alpha color conversion.

- [NppStatus nppiBGRToHLS_8u_P3R](#) (const Npp8u *const pSrc[3], int nSrcStep, Npp8u *pDst[3], int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned planar BGR to 3 channel 8-bit unsigned planar HLS color conversion.

- [NppStatus nppiBGRToHLS_8u_AP4R](#) (const Npp8u *const pSrc[4], int nSrcStep, Npp8u *pDst[4], int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned planar BGR with alpha to 4 channel 8-bit unsigned planar HLS with alpha color conversion.

HLSToBGR

HLS to BGR color conversion.

- [NppStatus nppiHLSToBGR_8u_C3P3R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst[3], int nDstStep, [NppiSize](#) oSizeROI)

3 channel 8-bit unsigned packed HLS to 3 channel 8-bit unsigned planar BGR color conversion.

- [NppStatus nppiHLSToBGR_8u_AC4P4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst[4], int nDstStep, [NppiSize](#) oSizeROI)

4 channel 8-bit unsigned packed HLS with alpha to 4 channel 8-bit unsigned planar BGR with alpha color conversion.

- [NppStatus nppiHLSToBGR_8u_P3R](#) (const [Npp8u](#) *const pSrc[3], int nSrcStep, [Npp8u](#) *pDst[3], int nDstStep, [NppiSize](#) oSizeROI)

3 channel 8-bit unsigned planar HLS to 3 channel 8-bit unsigned planar BGR color conversion.

- [NppStatus nppiHLSToBGR_8u_AP4R](#) (const [Npp8u](#) *const pSrc[4], int nSrcStep, [Npp8u](#) *pDst[4], int nDstStep, [NppiSize](#) oSizeROI)

4 channel 8-bit unsigned planar HLS with alpha to 4 channel 8-bit unsigned planar BGR with alpha color conversion.

- [NppStatus nppiHLSToBGR_8u_AC4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

4 channel 8-bit unsigned packed HLS with alpha to 4 channel 8-bit unsigned packed BGR with alpha color conversion.

- [NppStatus nppiHLSToBGR_8u_P3C3R](#) (const [Npp8u](#) *const pSrc[3], int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

3 channel 8-bit unsigned planar HLS to 3 channel 8-bit unsigned packed BGR color conversion.

- [NppStatus nppiHLSToBGR_8u_AP4C4R](#) (const [Npp8u](#) *const pSrc[4], int nSrcStep, [Npp8u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

4 channel 8-bit unsigned planar HLS with alpha to 4 channel 8-bit unsigned packed BGR with alpha color conversion.

RGBToHSV

RGB to HSV color conversion.

This is how NPP converts gamma corrected RGB or BGR to HSV. This code uses the fmaxf() and fminf() 32 bit floating point math functions.

```
Npp32f nNormalizedR = (Npp32f)R * 0.003921569F; // / 255.0F
Npp32f nNormalizedG = (Npp32f)G * 0.003921569F;
Npp32f nNormalizedB = (Npp32f)B * 0.003921569F;
Npp32f nS;
```

```

Npp32f nH;
// Value
Npp32f nV = fmaxf(nNormalizedR, nNormalizedG);
nV = fmaxf(nV, nNormalizedB);
// Saturation
Npp32f nTemp = fminf(nNormalizedR, nNormalizedG);
nTemp = fminf(nTemp, nNormalizedB);
Npp32f nDivisor = nV - nTemp;
if (nV == 0.0F) // achromatics case
{
    nS = 0.0F;
    nH = 0.0F;
}
else // chromatics case
    nS = nDivisor / nV;
// Hue:
Npp32f nCr = (nV - nNormalizedR) / nDivisor;
Npp32f nCg = (nV - nNormalizedG) / nDivisor;
Npp32f nCb = (nV - nNormalizedB) / nDivisor;
if (nNormalizedR == nV)
    nH = nCb - nCg;
else if (nNormalizedG == nV)
    nH = 2.0F + nCr - nCb;
else if (nNormalizedB == nV)
    nH = 4.0F + nCg - nCr;
nH = nH * 0.166667F; // / 6.0F
if (nH < 0.0F)
    nH = nH + 1.0F;
H = (Npp8u)(nH * 255.0F);
S = (Npp8u)(nS * 255.0F);
V = (Npp8u)(nV * 255.0F);

```

- [NppStatus nppiRGBToHSV_8u_C3R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed HSV color conversion.

- [NppStatus nppiRGBToHSV_8u_AC4R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed HSV with alpha color conversion.

HSVToRGB

HSV to RGB color conversion.

This is how NPP converts HSV to gamma corrected RGB or BGR. This code uses the floorf() 32 bit floating point math function.

```

Npp32f nNormalizedH = (Npp32f)H * 0.003921569F; // / 255.0F
Npp32f nNormalizedS = (Npp32f)S * 0.003921569F;
Npp32f nNormalizedV = (Npp32f)V * 0.003921569F;
Npp32f nR;
Npp32f nG;
Npp32f nB;
if (nNormalizedS == 0.0F)
{
    nR = nG = nB = nNormalizedV;
}
else
{
    if (nNormalizedH == 1.0F)

```

```

        nNormalizedH = 0.0F;
    else
        nNormalizedH = nNormalizedH * 6.0F; // / 0.1667F
    }
Npp32f nI = floorf(nNormalizedH);
Npp32f nF = nNormalizedH - nI;
Npp32f nM = nNormalizedV * (1.0F - nNormalizedS);
Npp32f nN = nNormalizedV * (1.0F - nNormalizedS * nF);
Npp32f nK = nNormalizedV * (1.0F - nNormalizedS * (1.0F - nF));
if (nI == 0.0F)
    { nR = nNormalizedV; nG = nK; nB = nM; }
else if (nI == 1.0F)
    { nR = nN; nG = nNormalizedV; nB = nM; }
else if (nI == 2.0F)
    { nR = nM; nG = nNormalizedV; nB = nK; }
else if (nI == 3.0F)
    { nR = nM; nG = nN; nB = nNormalizedV; }
else if (nI == 4.0F)
    { nR = nK; nG = nM; nB = nNormalizedV; }
else if (nI == 5.0F)
    { nR = nNormalizedV; nG = nM; nB = nN; }
R = (Npp8u)(nR * 255.0F);
G = (Npp8u)(nG * 255.0F);
B = (Npp8u)(nB * 255.0F);

```

- [NppStatus nppiHSVToRGB_8u_C3R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed HSV to 3 channel 8-bit unsigned packed RGB color conversion.

- [NppStatus nppiHSVToRGB_8u_AC4R](#) (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed HSV with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

7.44.1 Detailed Description

Routines for converting between various image color models.

7.44.2 Function Documentation

7.44.2.1 [NppStatus nppiBGRToCbYCr422_709HDTV_8u_AC4C2R](#) (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 2 channel 8-bit unsigned packed CbYCr422_-709HDTV color conversion.

images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.2 NppStatus nppiBGRToCbYCr422_709HDTV_8u_C3C2R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 2 channel 8-bit unsigned packed CbYCr422_709HDTV color conversion.

images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.3 NppStatus nppiBGRToCbYCr422_8u_AC4C2R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 2 channel 8-bit unsigned packed CbYCr422 color conversion.

images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.4 NppStatus nppiBGRToHLS_8u_AC4P4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[4], int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 4 channel 8-bit unsigned planar HLS with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.5 NppStatus nppiBGRToHLS_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed BGR with alpha to 4 channel 8-bit unsigned packed HLS with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.6 NppStatus nppiBGRToHLS_8u_AP4C4R (const Npp8u *const *pSrc*[4], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned planar BGR with alpha to 4 channel 8-bit unsigned packed HLS with alpha color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.7 NppStatus nppiBGRToHLS_8u_AP4R (const Npp8u *const *pSrc*[4], int *nSrcStep*, Npp8u **pDst*[4], int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned planar BGR with alpha to 4 channel 8-bit unsigned planar HLS with alpha color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.8 NppStatus nppiBGRToHLS_8u_C3P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar HLS color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.9 NppStatus nppiBGRToHLS_8u_P3C3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar BGR to 3 channel 8-bit unsigned packed HLS color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.10 NppStatus nppiBGRToHLS_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar BGR to 3 channel 8-bit unsigned planar HLS color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.11 NppStatus nppiBGRToLab_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned packed Lab color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.12 NppStatus nppiBGRToYCbCr411_8u_AC4P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr411 color conversion.

images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.13 NppStatus nppiBGRToYCbCr411_8u_C3P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCbCr411 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.14 NppStatus nppiBGRToYCbCr420_709CSC_8u_AC4P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr420_709CSC
color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.15 NppStatus nppiBGRToYCbCr420_709CSC_8u_C3P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCbCr420_709CSC color con-
version.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

pDst Destination-Planar-Image Pointer Array.

rDstStep Destination-Planar-Image Line Step Array.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.16 NppStatus nppiBGRToYCbCr420_709HDTV_8u_AC4P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr420_709HDTV color conversion.

images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Planar-Image Pointer Array.

rDstStep Destination-Planar-Image Line Step Array.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.17 NppStatus nppiBGRToYCbCr420_8u_AC4P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr420 color conversion.

images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Planar-Image Pointer Array.

rDstStep Destination-Planar-Image Line Step Array.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.18 NppStatus nppiBGRToYCbCr420_8u_C3P3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCbCr420 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.19 NppStatus nppiBGRToYCbCr422_8u_AC4C2R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed BGR with alpha to 2 channel 8-bit unsigned packed YCrCb422 color
conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.20 NppStatus nppiBGRToYCbCr422_8u_AC4P3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr422 color
conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.21 NppStatus nppiBGRToYCbCr422_8u_C3C2R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 2 channel 8-bit unsigned packed YCrCb422 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.22 NppStatus nppiBGRToYCbCr422_8u_C3P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCbCr422 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.23 NppStatus nppiBGRToYCrCb420_709CSC_8u_AC4P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCrCb420_709CSC color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.24 NppStatus nppiBGRToYCrCb420_709CSC_8u_C3P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCrCb420_709CSC color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.25 NppStatus nppiBGRToYCrCb420_8u_AC4P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCrCb420 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.26 NppStatus nppiBGRToYCrCb420_8u_C3P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

3 channel 8-bit unsigned packed BGR to 3 channel 8-bit unsigned planar YCrCb420 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.27 NppStatus nppiBGRToYUV420_8u_AC4P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

4 channel 8-bit unsigned pacmed BGR with alpha to 3 channel 8-bit unsigned planar YUV420 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.28 NppStatus nppiCbYCr422ToBGR_709HDTV_8u_C2C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned packed BGR_709HDTV color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.29 NppStatus nppiCbYCr422ToBGR_709HDTV_8u_C2C4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

2 channel 8-bit unsigned packed CbYCr422 to 4 channel 8-bit unsigned packed BGR_709HDTV color conversion with constant alpha.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAval 8-bit unsigned alpha constant.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.30 NppStatus nppiCbYCr422ToBGR_8u_C2C4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

2 channel 8-bit unsigned packed CbYCr422 to 4 channel 8-bit unsigned packed BGR color conversion with alpha.
images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAval 8-bit unsigned alpha constant.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.31 NppStatus nppiCbYCr422ToRGB_8u_C2C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed CbYCrC22 to 3 channel 8-bit unsigned packed RGB color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.32 NppStatus nppiHLSToBGR_8u_AC4P4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst[4]*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed HLS with alpha to 4 channel 8-bit unsigned planar BGR with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.33 NppStatus nppiHLSToBGR_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed HLS with alpha to 4 channel 8-bit unsigned packed BGR with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.34 NppStatus nppiHLSToBGR_8u_AP4C4R (const Npp8u *const *pSrc*[4], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned planar HLS with alpha to 4 channel 8-bit unsigned packed BGR with alpha color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.35 NppStatus nppiHLSToBGR_8u_AP4R (const Npp8u *const *pSrc*[4], int *nSrcStep*, Npp8u **pDst*[4], int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned planar HLS with alpha to 4 channel 8-bit unsigned planar BGR with alpha color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.36 NppStatus nppiHLSToBGR_8u_C3P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed HLS to 3 channel 8-bit unsigned planar BGR color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.37 NppStatus nppiHLSToBGR_8u_P3C3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar HLS to 3 channel 8-bit unsigned packed BGR color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.38 NppStatus nppiHLSToBGR_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar HLS to 3 channel 8-bit unsigned planar BGR color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.39 NppStatus nppiHLSToRGB_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed HLS with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.40 NppStatus nppiHLSToRGB_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed HLS to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.41 NppStatus nppiHSVToRGB_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed HSV with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.42 NppStatus nppiHSVToRGB_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed HSV to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.43 NppStatus nppiLabToBGR_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed Lab to 3 channel 8-bit unsigned packed BGR color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.44 NppStatus nppiLUVToRGB_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed LUV with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.45 NppStatus nppiLUVToRGB_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed LUV to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.46 NppStatus nppiRGBToCbYCr422_8u_C3C2R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 2 channel 8-bit unsigned packed CbYCr422 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.47 NppStatus nppiRGBToCbYCr422Gamma_8u_C3C2R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB first gets forward gamma corrected then converted to 2 channel 8-bit unsigned packed CbYCr422 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.48 NppStatus nppiRGBToHLS_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed HLS with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.49 NppStatus nppiRGBToHLS_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed HLS color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.50 NppStatus nppiRGBToHSV_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed HSV with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.51 NppStatus nppiRGBToHSV_8u_C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed HSV color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.52 NppStatus nppiRGBToLUV_8u_AC4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed LUV with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.53 NppStatus nppiRGBToLUV_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed LUV color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.54 NppStatus nppiRGBToXYZ_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed XYZ with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.55 NppStatus nppiRGBToXYZ_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed XYZ color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.44.2.56 NppStatus nppiRGBToYCbCr420_8u_C3P3R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)**

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YCbCr420 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.44.2.57 NppStatus nppiRGBToYCbCr422_8u_C3C2R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst, int nDstStep, NppiSize oSizeROI)**

3 channel 8-bit unsigned packed RGB to 2 channel 8-bit unsigned packed YCbCr422 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.44.2.58 NppStatus nppiRGBToYCbCr422_8u_C3P3R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)**

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YCbCr422 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.59 NppStatus nppiRGBToYCbCr422_8u_P3C2R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar RGB to 2 channel 8-bit unsigned packed YCbCr422 color conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.60 NppStatus nppiRGBToYCbCr_8u_AC4P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 3 channel 8-bit unsigned planar YCbCr color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Planar-Image Pointer Array.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.61 NppStatus nppiRGBToYCbCr_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel unsigned 8-bit packed YCbCr with alpha
color conversion, not affecting alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.62 NppStatus nppiRGBToYCbCr_8u_C3P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel unsigned 8-bit planar YCbCr color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.63 NppStatus nppiRGBToYCbCr_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel unsigned 8-bit packed YCbCr color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.64 NppStatus nppiRGBToYCbCr_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel planar 8-bit unsigned RGB to 3 channel planar 8-bit YCbCr color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.65 NppStatus nppiRGBToYCC_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed YCC with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.66 NppStatus nppiRGBToYCC_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed YCC color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.67 NppStatus nppiRGBToYCrCb420_8u_AC4P3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 3 channel 8-bit unsigned planar YCrCb420 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.68 NppStatus nppiRGBToYCrCb422_8u_C3C2R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 2 channel 8-bit unsigned packed YCrCb422 color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.69 NppStatus nppiRGBToYCrCb422_8u_P3C2R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar RGB to 2 channel 8-bit unsigned packed YCrCb422 color conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.70 NppStatus nppiRGBToYUV420_8u_C3P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YUV420 color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Planar-Image Pointer Array.

rDstStep Destination-Planar-Image Line Step Array.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.71 NppStatus nppiRGBToYUV420_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar RGB to 3 channel 8-bit unsigned planar YUV420 color conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.

nSrcStep Source-Image Line Step.

pDst Destination-Planar-Image Pointer Array.

rDstStep Destination-Planar-Image Line Step Array.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.72 NppStatus nppiRGBToYUV422_8u_C3C2R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 2 channel 8-bit unsigned packed YUV422 color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.73 NppStatus nppiRGBToYUV422_8u_C3P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YUV422 color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.74 NppStatus nppiRGBToYUV422_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar RGB to 3 channel 8-bit unsigned planar YUV422 color conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.75 NppStatus nppiRGBToYUV_8u_AC4P4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*[4], int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned planar YUV color conversion with alpha.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.76 NppStatus nppiRGBToYUV_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 4 channel 8-bit unsigned packed YUV color conversion with alpha, not affecting alpha.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.77 NppStatus nppiRGBToYUV_8u_C3P3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned planar YUV color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.

nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.78 NppStatus nppiRGBToYUV_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed RGB to 3 channel 8-bit unsigned packed YUV color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.79 NppStatus nppiRGBToYUV_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar RGB to 3 channel 8-bit unsigned planar YUV color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.80 NppStatus nppiXYZToRGB_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed XYZ with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.81 NppStatus nppiXYZToRGB_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed XYZ to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.82 NppStatus nppiYCbCr411ToBGR_8u_P3C3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned packed BGR color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.

rSrcStep Source-Planar-Image Line Step Array.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.83 NppStatus nppiYCbCr411ToBGR_8u_P3C4R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

3 channel 8-bit unsigned planar YCbCr411 to 4 channel 8-bit unsigned packed BGR color conversion with constant alpha.

Parameters:

- pSrc* Source-Planar-Image Pointer Array.
- rSrcStep* Source-Planar-Image Line Step Array.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nAval* 8-bit unsigned alpha constant.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.84 NppStatus nppiYCbCr420ToBGR_709CSC_8u_P3C3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned packed BGR_709CSC color conversion.

Parameters:

- pSrc* Source-Planar-Image Pointer Array.
- rSrcStep* Source-Planar-Image Line Step Array.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.85 NppStatus nppiYCbCr420ToBGR_709HDTV_8u_P3C4R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

3 channel 8-bit unsigned planar YCbCr420 to 4 channel 8-bit unsigned packed BGR_709HDTV color conversion with constant alpha.

Parameters:

- pSrc* Source-Planar-Image Pointer Array.
- rSrcStep* Source-Planar-Image Line Step Array.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAval 8-bit unsigned alpha constant.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.86 NppStatus nppiYCbCr420ToBGR_8u_P3C3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned packed BGR color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.

rSrcStep Source-Planar-Image Line Step Array.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.87 NppStatus nppiYCbCr420ToBGR_8u_P3C4R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

3 channel 8-bit unsigned planar YCbCr420 to 4 channel 8-bit unsigned packed BGR color conversion with constant alpha.

Parameters:

pSrc Source-Planar-Image Pointer Array.

rSrcStep Source-Planar-Image Line Step Array.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nAval 8-bit unsigned alpha constant.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.88 NppStatus nppiYCbCr420ToRGB_8u_P3C3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.89 NppStatus nppiYCbCr422ToBGR_8u_C2C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned packed BGR color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.90 NppStatus nppiYCbCr422ToBGR_8u_C2C4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp8u nAval)

2 channel 8-bit unsigned packed YCrCb422 to 4 channel 8-bit unsigned packed BGR color conversion with
constant alpha.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAval 8-bit unsigned alpha constant.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.91 NppStatus nppiYCbCr422ToBGR_8u_P3C3R (const Npp8u *const *pSrc*[3], int *nSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr422 to 3 channel 8-bit unsigned packed BGR color conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.92 NppStatus nppiYCbCr422ToRGB_8u_C2C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned packed RGB color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.93 NppStatus nppiYCbCr422ToRGB_8u_C2P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar RGB color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.94 NppStatus nppiYCbCr422ToRGB_8u_P3C3R (const Npp8u *const *pSrc*[3], int *nSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr422 to 3 channel 8-bit unsigned packed RGB color conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.

nSrcStep Source-Planar-Image Line Step Array.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.95 NppStatus nppiYCbCrToBGR_709CSC_8u_P3C3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr to 3 channel 8-bit unsigned packed BGR_709CSC color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.96 NppStatus nppiYCbCrToBGR_709CSC_8u_P3C4R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

3 channel 8-bit unsigned planar YCbCr to 4 channel 8-bit unsigned packed BGR_709CSC color conversion
with constant alpha.

Parameters:

pSrc Source-Planar-Image Pointer Array.

nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAval 8-bit unsigned alpha constant.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.97 NppStatus nppiYCbCrToBGR_8u_P3C3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr to 3 channel 8-bit unsigned packed BGR color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.98 NppStatus nppiYCbCrToBGR_8u_P3C4R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

3 channel 8-bit unsigned planar YCbCr to 4 channel 8-bit unsigned packed BGR color conversion with constant alpha.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAval 8-bit unsigned alpha constant.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.44.2.99 NppStatus nppiYCbCrToRGB_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed YCbCr with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion, not affecting alpha.

Alpha channel is the last channel and is not processed.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.100 NppStatus nppiYCbCrToRGB_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed YCbCr to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.101 NppStatus nppiYCbCrToRGB_8u_P3C3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

- pSrc* Source-Planar-Image Pointer Array.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.102 NppStatus nppiYCbCrToRGB_8u_P3C4R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

3 channel 8-bit unsigned planar YCbCr to 4 channel 8-bit unsigned packed RGB color conversion with constant alpha.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nAval 8-bit unsigned alpha constant.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.103 NppStatus nppiYCbCrToRGB_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr to 3 channel 8-bit unsigned planar RGB color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.104 NppStatus nppiYCCToRGB_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed YCC with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.105 NppStatus nppiYCCToRGB_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed YCC to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.106 NppStatus nppiYCrCb420ToRGB_8u_P3C4R (const Npp8u *const *pSrc[3]*, int *rSrcStep[3]*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp8u *nAval*)

3 channel 8-bit unsigned planar YCrCb420 to 4 channel 8-bit unsigned packed RGB color conversion with constant alpha.

Parameters:

- pSrc* Source-Planar-Image Pointer Array.
- rSrcStep* Source-Planar-Image Line Step Array.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nAval* 8-bit unsigned alpha constant.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.107 NppStatus nppiYCrCb422ToRGB_8u_C2C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned packed RGB color conversion.
images.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.44.2.108 NppStatus nppiYCrCb422ToRGB_8u_C2P3R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst[3], int nDstStep, NppiSize oSizeROI)**

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned planar RGB color conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.44.2.109 NppStatus nppiYUV420ToBGR_8u_P3C3R (const Npp8u *const pSrc[3], int
rSrcStep[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)**

3 channel 8-bit unsigned planar YUV420 to 3 channel 8-bit unsigned packed BGR color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.44.2.110 NppStatus nppiYUV420ToRGB_8u_P3AC4R (const Npp8u *const pSrc[3], int
rSrcStep[3], Npp8u * pDst, int nDstStep, NppiSize oSizeROI)**

3 channel 8-bit unsigned planar YUV420 to 4 channel 8-bit unsigned packed RGB color conversion with
alpha.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.111 NppStatus nppiYUV420ToRGB_8u_P3C3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YUV420 to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.112 NppStatus nppiYUV420ToRGB_8u_P3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YUV420 to 3 channel 8-bit unsigned planar RGB color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.113 NppStatus nppiYUV422ToRGB_8u_C2C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YUV422 to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.114 NppStatus nppiYUV422ToRGB_8u_P3AC4R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YUV422 to 4 channel 8-bit unsigned packed RGB color conversion with alpha.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.115 NppStatus nppiYUV422ToRGB_8u_P3C3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YUV422 to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.116 NppStatus nppiYUV422ToRGB_8u_P3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YUV422 to 3 channel 8-bit unsigned planar RGB color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.117 NppStatus nppiYUVToRGB_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit packed YUV with alpha to 4 channel 8-bit unsigned packed RGB color conversion with alpha, not affecting alpha.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.118 NppStatus nppiYUVToRGB_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed YUV to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.44.2.119 NppStatus nppiYUVToRGB_8u_P3C3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YUV to 3 channel 8-bit unsigned packed RGB color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.44.2.120 NppStatus nppiYUVToRGB_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*,
Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)**

3 channel 8-bit unsigned planar YUV to 3 channel 8-bit unsigned planar RGB color conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45 Color Sampling Format Conversion

Routines for converting between various image color sampling formats.

YCbCr420ToYCbCr411

YCbCr420 to YCbCr411 sampling format conversion.

- `NppStatus nppiYCbCr420ToYCbCr411_8u_P3P2R` (const `Npp8u` *const `pSrc[3]`, int `rSrcStep[3]`, `Npp8u` *`pDstY`, int `nDstYStep`, `Npp8u` *`pDstCbCr`, int `nDstCbCrStep`, `NppiSize` `oSizeROI`)
3 channel 8-bit unsigned planar YCbCr420 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.
- `NppStatus nppiYCbCr420ToYCbCr411_8u_P2P3R` (const `Npp8u` *`pSrcY`, int `nSrcYStep`, const `Npp8u` *`pSrcCbCr`, int `nSrcCbCrStep`, `Npp8u` *`pDst[3]`, int `rDstStep[3]`, `NppiSize` `oSizeROI`)
2 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

YCbCr422ToYCbCr422

YCbCr422 to YCbCr422 sampling format conversion.

- `NppStatus nppiYCbCr422_8u_C2P3R` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst[3]`, int `rDstStep[3]`, `NppiSize` `oSizeROI`)
2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
- `NppStatus nppiYCbCr422_8u_P3C2R` (const `Npp8u` *const `pSrc[3]`, int `rSrcStep[3]`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
3 channel 8-bit unsigned planar YCbCr422 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.

YCbCr422ToYCrCb422

YCbCr422 to YCrCb422 sampling format conversion.

- `NppStatus nppiYCbCr422ToYCrCb422_8u_C2R` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
2 channel 8-bit unsigned packed YCbCr422 to 2 channel 8-bit unsigned packed YCrCb422 sampling format conversion.
- `NppStatus nppiYCbCr422ToYCrCb422_8u_P3C2R` (const `Npp8u` *const `pSrc[3]`, int `rSrcStep[3]`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)
3 channel 8-bit unsigned planar YCbCr422 to 2 channel 8-bit unsigned packed YCrCb422 sampling format conversion.

YCbCr422ToCbYCr422

YCbCr422 to CbYCr422 sampling format conversion.

- `NppStatus nppiYCbCr422ToCbYCr422_8u_C2R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`)
2 channel 8-bit unsigned packed YCbCr422 to 2 channel 8-bit unsigned packed CbYCr422 sampling format conversion.

CbYCr422ToYCbCr411

CbYCr422 to YCbCr411 sampling format conversion.

- `NppStatus nppiCbYCr422ToYCbCr411_8u_C2P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)
2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

YCbCr422ToYCbCr420

YCbCr422 to YCbCr420 sampling format conversion.

- `NppStatus nppiYCbCr422ToYCbCr420_8u_P3R` (const `Npp8u *const pSrc[3]`, int `rSrcStep[3]`, `Npp8u *pDst[3]`, int `nDstStep[3]`, `NppiSize oSizeROI`)
3 channel 8-bit unsigned planar YCbCr422 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.
- `NppStatus nppiYCbCr422ToYCbCr420_8u_P3P2R` (const `Npp8u *const pSrc[3]`, int `rSrcStep[3]`, `Npp8u *pDstY`, int `nDstYStep`, `Npp8u *pDstCbCr`, int `nDstCbCrStep`, `NppiSize oSizeROI`)
3 channel 8-bit unsigned planar YCbCr422 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.
- `NppStatus nppiYCbCr422ToYCbCr420_8u_C2P3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)
2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.
- `NppStatus nppiYCbCr422ToYCbCr420_8u_C2P2R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDstY`, int `nDstYStep`, `Npp8u *pDstCbCr`, int `nDstCbCrStep`, `NppiSize oSizeROI`)
2 channel 8-bit unsigned packed YCbCr422 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

YCrCb420ToYCbCr422

YCrCb420 to YCbCr422 sampling format conversion.

- `NppStatus nppiYCrCb420ToYCbCr422_8u_P3R` (const `Npp8u *const pSrc[3]`, int `rSrcStep[3]`, `Npp8u *pDst[3]`, int `rDstStep[3]`, `NppiSize oSizeROI`)

3 channel 8-bit unsigned planar YCrCb420 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.

- **NppStatus nppiYCrCb420ToYCbCr422_8u_P3C2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCrCb420 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.

YCbCr422ToYCrCb420

YCbCr422 to YCrCb420 sampling format conversion.

- **NppStatus nppiYCbCr422ToYCrCb420_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar YCrCb420 sampling format conversion.

YCbCr422ToYCbCr411

YCbCr422 to YCbCr411 sampling format conversion.

- **NppStatus nppiYCbCr422ToYCbCr411_8u_P3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr422 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

- **NppStatus nppiYCbCr422ToYCbCr411_8u_P3P2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDstY, int nDstYStep, **Npp8u** *pDstCbCr, int nDstCbCrStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr422 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

- **NppStatus nppiYCbCr422ToYCbCr411_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

- **NppStatus nppiYCbCr422ToYCbCr411_8u_C2P2R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDstY, int nDstYStep, **Npp8u** *pDstCbCr, int nDstCbCrStep, **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed YCbCr422 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

YCrCb422ToYCbCr422

YCrCb422 to YCbCr422 sampling format conversion.

- **NppStatus nppiYCrCb422ToYCbCr422_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.

YCrCb422ToYCbCr420

YCrCb422 to YCbCr420 sampling format conversion.

- **NppStatus nppiYCrCb422ToYCbCr420_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

YCrCb422ToYCbCr411

YCrCb422 to YCbCr411 sampling format conversion.

- **NppStatus nppiYCrCb422ToYCbCr411_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

CbYCr422ToYCbCr422

CbYCr422 to YCbCr422 sampling format conversion.

- **NppStatus nppiCbYCr422ToYCbCr422_8u_C2R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed CbYCr422 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.

- **NppStatus nppiCbYCr422ToYCbCr422_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.

CbYCr422ToYCbCr420

CbYCr422 to YCbCr420 sampling format conversion.

- **NppStatus nppiCbYCr422ToYCbCr420_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

- **NppStatus nppiCbYCr422ToYCbCr420_8u_C2P2R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDstY, int nDstYStep, **Npp8u** *pDstCbCr, int nDstCbCrStep, **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed CbYCr422 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

CbYCr422ToYCrCb420

CbYCr422 to YCrCb420 sampling format conversion.

- **NppStatus nppiCbYCr422ToYCrCb420_8u_C2P3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned planar YCrCb420 sampling format conversion.

YCbCr420ToYCbCr420

YCbCr420 to YCbCr420 sampling format conversion.

- **NppStatus nppiYCbCr420_8u_P3P2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDstY, int nDstYStep, **Npp8u** *pDstCbCr, int nDstCbCrStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr420 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.
- **NppStatus nppiYCbCr420_8u_P2P3R** (const **Npp8u** *const pSrcY, int nSrcYStep, const **Npp8u** *pSrcCbCr, int nSrcCbCrStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

YCbCr420ToYCbCr422

YCbCr420 to YCbCr422 sampling format conversion.

- **NppStatus nppiYCbCr420ToYCbCr422_8u_P3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst[3], int nDstStep[3], **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
- **NppStatus nppiYCbCr420ToYCbCr422_8u_P2P3R** (const **Npp8u** *pSrcY, int nSrcYStep, const **Npp8u** *pSrcCbCr, int nSrcCbCrStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
- **NppStatus nppiYCbCr420ToYCbCr422_8u_P2C2R** (const **Npp8u** *pSrcY, int nSrcYStep, const **Npp8u** *pSrcCbCr, int nSrcCbCrStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

2 channel 8-bit unsigned planar YCbCr420 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.

YCbCr420ToCbYCr422

YCbCr420 to CbYCr422 sampling format conversion.

- **NppStatus nppiYCbCr420ToCbYCr422_8u_P2C2R** (const **Npp8u** *pSrcY, int nSrcYStep, const **Npp8u** *pSrcCbCr, int nSrcCbCrStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

2 channel 8-bit unsigned planar YCbCr420 to 2 channel 8-bit unsigned packed CbYCr422 sampling format conversion.

YCbCr420ToYCrCb420

YCbCr420 to YCrCb420 sampling format conversion.

- **NppStatus nppiYCbCr420ToYCrCb420_8u_P2P3R** (const **Npp8u** *pSrcY, int nSrcYStep, const **Npp8u** *pSrcCbCr, int nSrcCbCrStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)

2 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCrCb420 sampling format conversion.

YCrCb420ToCbYCr422

YCrCb420 to CbYCr422 sampling format conversion.

- **NppStatus nppiYCrCb420ToCbYCr422_8u_P3C2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCrCb420 to 2 channel 8-bit unsigned packed CbYCr422 sampling format conversion.

YCrCb420ToYCbCr420

YCrCb420 to YCbCr420 sampling format conversion.

- **NppStatus nppiYCrCb420ToYCbCr420_8u_P3P2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDstY, int nDstYStep, **Npp8u** *pDstCbCr, int nDstCbCrStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCrCb420 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

YCrCb420ToYCbCr411

YCrCb420 to YCbCr411 sampling format conversion.

- **NppStatus nppiYCrCb420ToYCbCr411_8u_P3P2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDstY, int nDstYStep, **Npp8u** *pDstCbCr, int nDstCbCrStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCrCb420 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

YCbCr411ToYCbCr411

YCbCr411 to YCbCr411 sampling format conversion.

- **NppStatus nppiYCbCr411_8u_P3P2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDstY, int nDstYStep, **Npp8u** *pDstCbCr, int nDstCbCrStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.
- **NppStatus nppiYCbCr411_8u_P2P3R** (const **Npp8u** *pSrcY, int nSrcYStep, const **Npp8u** *pSrcCbCr, int nSrcCbCrStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)
2 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

YCbCr411ToYCbCr422

YCbCr411 to YCbCr422 sampling format conversion.

- **NppStatus nppiYCbCr411ToYCbCr422_8u_P3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst[3], int nDstStep[3], **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
- **NppStatus nppiYCbCr411ToYCbCr422_8u_P3C2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.
- **NppStatus nppiYCbCr411ToYCbCr422_8u_P2P3R** (const **Npp8u** *const pSrcY, int nSrcYStep, const **Npp8u** *pSrcCbCr, int nSrcCbCrStep, **Npp8u** *pDst[3], int rDstStep[3], **NppiSize** oSizeROI)
2 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
- **NppStatus nppiYCbCr411ToYCbCr422_8u_P2C2R** (const **Npp8u** *pSrcY, int nSrcYStep, const **Npp8u** *pSrcCbCr, int nSrcCbCrStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
2 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.

YCbCr411ToYCrCb422

YCbCr411 to YCrCb422 sampling format conversion.

- **NppStatus nppiYCbCr411ToYCrCb422_8u_P3R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst[3], int nDstStep[3], **NppiSize** oSizeROI)
3 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCrCb422 sampling format conversion.
- **NppStatus nppiYCbCr411ToYCrCb422_8u_P3C2R** (const **Npp8u** *const pSrc[3], int rSrcStep[3], **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned packed YCrCb422 sampling format conversion.

YCbCr411ToYCbCr420

YCbCr411 to YCbCr420 sampling format conversion.

- **NppStatus nppiYCbCr411ToYCbCr420_8u_P3R** (const **Npp8u** *const **pSrc[3]**, int **rSrcStep[3]**, **Npp8u** ***pDst[3]**, int **nDstStep[3]**, **NppiSize** **oSizeROI**)
3 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.
- **NppStatus nppiYCbCr411ToYCbCr420_8u_P3P2R** (const **Npp8u** *const **pSrc[3]**, int **rSrcStep[3]**, **Npp8u** ***pDstY**, int **nDstYStep**, **Npp8u** ***pDstCbCr**, int **nDstCbCrStep**, **NppiSize** **oSizeROI**)
3 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.
- **NppStatus nppiYCbCr411ToYCbCr420_8u_P2P3R** (const **Npp8u** ***pSrcY**, int **nSrcYStep**, const **Npp8u** ***pSrcCbCr**, int **nSrcCbCrStep**, **Npp8u** ***pDst[3]**, int **rDstStep[3]**, **NppiSize** **oSizeROI**)
2 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

YCbCr411ToYCrCb420

YCbCr411 to YCrCb420 sampling format conversion.

- **NppStatus nppiYCbCr411ToYCrCb420_8u_P2P3R** (const **Npp8u** ***pSrcY**, int **nSrcYStep**, const **Npp8u** ***pSrcCbCr**, int **nSrcCbCrStep**, **Npp8u** ***pDst[3]**, int **rDstStep[3]**, **NppiSize** **oSizeROI**)
2 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCrCb420 sampling format conversion.

7.45.1 Detailed Description

Routines for converting between various image color sampling formats.

7.45.2 Function Documentation

7.45.2.1 NppStatus nppiCbYCr422ToYCbCr411_8u_C2P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.2 NppStatus nppiCbYCr422ToYCbCr420_8u_C2P2R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDstY, int nDstYStep, Npp8u * pDstCbCr, int nDstCbCrStep, NppiSize oSizeROI)

2 channel 8-bit unsigned packed CbYCr422 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.3 NppStatus nppiCbYCr422ToYCbCr420_8u_C2P3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

**7.45.2.4 NppStatus nppiCbYCr422ToYCbCr422_8u_C2P3R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)**

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.45.2.5 NppStatus nppiCbYCr422ToYCbCr422_8u_C2R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst, int nDstStep, NppiSize oSizeROI)**

2 channel 8-bit unsigned packed CbYCr422 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.45.2.6 NppStatus nppiCbYCr422ToYCrCb420_8u_C2P3R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)**

2 channel 8-bit unsigned packed CbYCr422 to 3 channel 8-bit unsigned planar YCrCb420 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.7 NppStatus nppiYCbCr411_8u_P2P3R (const Npp8u **pSrcY*, int *nSrcYStep*, const Npp8u **pSrcCbCr*, int *nSrcCbCrStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.8 NppStatus nppiYCbCr411_8u_P3P2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDstY*, int *nDstYStep*, Npp8u **pDstCbCr*, int *nDstCbCrStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.9 NppStatus nppiYCbCr411ToYCbCr420_8u_P2P3R (const Npp8u * pSrcY, int nSrcYStep, const Npp8u * pSrcCbCr, int nSrcCbCrStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

2 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.10 NppStatus nppiYCbCr411ToYCbCr420_8u_P3P2R (const Npp8u *const pSrc[3], int rSrcStep[3], Npp8u *pDstY, int nDstYStep, Npp8u *pDstCbCr, int nDstCbCrStep, NppiSize oSizeROI)

3 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.11 NppStatus nppiYCbCr411ToYCbCr420_8u_P3R (const Npp8u *const pSrc[3], int rSrcStep[3], Npp8u *pDst[3], int nDstStep[3], NppiSize oSizeROI)

3 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.12 NppStatus nppiYCbCr411ToYCbCr422_8u_P2C2R (const Npp8u **pSrcY*, int *nSrcYStep*, const Npp8u **pSrcCbCr*, int *nSrcCbCrStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.13 NppStatus nppiYCbCr411ToYCbCr422_8u_P2P3R (const Npp8u **const pSrcY*, int *nSrcYStep*, const Npp8u **pSrcCbCr*, int *nSrcCbCrStep*, Npp8u **pDst[3]*, int *rDstStep[3]*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.14 NppStatus nppiYCbCr411ToYCbCr422_8u_P3C2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.15 NppStatus nppiYCbCr411ToYCbCr422_8u_P3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*[3], int *nDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.16 NppStatus nppiYCbCr411ToYCrCb420_8u_P2P3R (const Npp8u **pSrcY*, int *nSrcYStep*, const Npp8u **pSrcCbCr*, int *nSrcCbCrStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCrCb420 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.

pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.17 NppStatus nppiYCbCr411ToYCrCb422_8u_P3C2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr411 to 2 channel 8-bit unsigned packed YCrCb422 sampling format conversion.
 images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.18 NppStatus nppiYCbCr411ToYCrCb422_8u_P3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*[3], int *nDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr411 to 3 channel 8-bit unsigned planar YCrCb422 sampling format conversion.
 images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.19 NppStatus nppiYCbCr420_8u_P2P3R (const Npp8u *const *pSrcY*, int *nSrcYStep*, const Npp8u **pSrcCbCr*, int *nSrcCbCrStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.20 NppStatus nppiYCbCr420_8u_P3P2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDstY*, int *nDstYStep*, Npp8u **pDstCbCr*, int *nDstCbCrStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr420 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.21 NppStatus nppiYCbCr420ToCbYCr422_8u_P2C2R (const Npp8u **pSrcY*, int *nSrcYStep*, const Npp8u **pSrcCbCr*, int *nSrcCbCrStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar YCbCr420 to 2 channel 8-bit unsigned packed CbYCr422 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.22 NppStatus nppiYCbCr420ToYCbCr411_8u_P2P3R (const Npp8u **pSrcY*, int *nSrcYStep*, const Npp8u **pSrcCbCr*, int *nSrcCbCrStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.23 NppStatus nppiYCbCr420ToYCbCr411_8u_P3P2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDstY*, int *nDstYStep*, Npp8u **pDstCbCr*, int *nDstCbCrStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr420 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.

pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.24 NppStatus nppiYCbCr420ToYCbCr422_8u_P2C2R (const Npp8u * pSrcY, int nSrcYStep, const Npp8u * pSrcCbCr, int nSrcCbCrStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

2 channel 8-bit unsigned planar YCbCr420 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.25 NppStatus nppiYCbCr420ToYCbCr422_8u_P2P3R (const Npp8u * pSrcY, int nSrcYStep, const Npp8u * pSrcCbCr, int nSrcCbCrStep, Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)

2 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.26 NppStatus nppiYCbCr420ToYCbCr422_8u_P3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*[3], int *nDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.27 NppStatus nppiYCbCr420ToYCrCb420_8u_P2P3R (const Npp8u **pSrcY*, int *nSrcYStep*, const Npp8u **pSrcCbCr*, int *nSrcCbCrStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar YCbCr420 to 3 channel 8-bit unsigned planar YCrCb420 sampling format conversion.

Parameters:

pSrcY Source-Planar-Image Pointer.
nSrcYStep Source-Planar-Image Line Step.
pSrcCbCr Source-Planar-Image Pointer.
nSrcCbCrStep Source-Planar-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.28 NppStatus nppiYCbCr422_8u_C2P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Planar-Image Pointer Array.

rDstStep Destination-Planar-Image Line Step Array.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.29 NppStatus nppiYCbCr422_8u_P3C2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr422 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.

rSrcStep Source-Planar-Image Line Step Array.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.30 NppStatus nppiYCbCr422ToCbYCr422_8u_C2R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 2 channel 8-bit unsigned packed CbYCr422 sampling format conversion.

images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.31 NppStatus nppiYCbCr422ToYCbCr411_8u_C2P2R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDstY*, int *nDstYStep*, Npp8u **pDstCbCr*, int *nDstCbCrStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.32 NppStatus nppiYCbCr422ToYCbCr411_8u_C2P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst[3]*, int *rDstStep[3]*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.33 NppStatus nppiYCbCr422ToYCbCr411_8u_P3P2R (const Npp8u *const *pSrc[3]*, int *rSrcStep[3]*, Npp8u **pDstY*, int *nDstYStep*, Npp8u **pDstCbCr*, int *nDstCbCrStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr422 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.34 NppStatus nppiYCbCr422ToYCbCr411_8u_P3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr422 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.45.2.35 NppStatus nppiYCbCr422ToYCbCr420_8u_C2P2R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDstY*, int *nDstYStep*, Npp8u **pDstCbCr*, int *nDstCbCrStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.

nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.45.2.36 NppStatus nppiYCbCr422ToYCbCr420_8u_C2P3R (const Npp8u *pSrc, int nSrcStep,
 Npp8u *pDst[3], int rDstStep[3], NppiSize oSizeROI)**

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.45.2.37 NppStatus nppiYCbCr422ToYCbCr420_8u_P3P2R (const Npp8u *const pSrc[3], int
 rSrcStep[3], Npp8u *pDstY, int nDstYStep, Npp8u *pDstCbCr, int nDstCbCrStep,
 NppiSize oSizeROI)**

3 channel 8-bit unsigned planar YCbCr422 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.38 NppStatus nppiYCbCr422ToYCbCr420_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*[3], Npp8u **pDst*[3], int *nDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCbCr422 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
nDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.39 NppStatus nppiYCbCr422ToYCrCb420_8u_C2P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 3 channel 8-bit unsigned planar YCrCb420 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.40 NppStatus nppiYCbCr422ToYCrCb422_8u_C2R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCbCr422 to 2 channel 8-bit unsigned packed YCrCb422 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.41 NppStatus nppiYCbCr422ToYCrCb422_8u_P3C2R (const Npp8u *const pSrc[3], int rSrcStep[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned planar YCbCr422 to 2 channel 8-bit unsigned packed YCrCb422 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.42 NppStatus nppiYCrCb420ToCbYCr422_8u_P3C2R (const Npp8u *const pSrc[3], int rSrcStep[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned planar YCrCb420 to 2 channel 8-bit unsigned packed CbYCr422 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.43 NppStatus nppiYCrCb420ToYCbCr411_8u_P3P2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDstY*, int *nDstYStep*, Npp8u **pDstCbCr*, int *nDstCbCrStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCrCb420 to 2 channel 8-bit unsigned planar YCbCr411 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.44 NppStatus nppiYCrCb420ToYCbCr420_8u_P3P2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDstY*, int *nDstYStep*, Npp8u **pDstCbCr*, int *nDstCbCrStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCrCb420 to 2 channel 8-bit unsigned planar YCbCr420 sampling format conversion.

images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDstY Destination-Planar-Image Pointer.
nDstYStep Destination-Planar-Image Line Step.
pDstCbCr Destination-Planar-Image Pointer.
nDstCbCrStep Destination-Planar-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.45 NppStatus nppiYCrCb420ToYCbCr422_8u_P3C2R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCrCb420 to 2 channel 8-bit unsigned packed YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.46 NppStatus nppiYCrCb420ToYCbCr422_8u_P3R (const Npp8u *const *pSrc*[3], int *rSrcStep*[3], Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar YCrCb420 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Planar-Image Pointer Array.
rSrcStep Source-Planar-Image Line Step Array.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.45.2.47 NppStatus nppiYCrCb422ToYCbCr411_8u_C2P3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*[3], int *rDstStep*[3], NppiSize *oSizeROI*)

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned planar YCbCr411 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

**7.45.2.48 NppStatus nppiYCrCb422ToYCbCr420_8u_C2P3R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)**

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned planar YCbCr420 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

**7.45.2.49 NppStatus nppiYCrCb422ToYCbCr422_8u_C2P3R (const Npp8u * pSrc, int nSrcStep,
Npp8u * pDst[3], int rDstStep[3], NppiSize oSizeROI)**

2 channel 8-bit unsigned packed YCrCb422 to 3 channel 8-bit unsigned planar YCbCr422 sampling format conversion.
images.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Planar-Image Pointer Array.
rDstStep Destination-Planar-Image Line Step Array.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.46 Color Gamma Correction

Routines for correcting image color gamma.

GammaFwd

Forward gamma correction.

- **NppStatus nppiGammaFwd_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed color not in place forward gamma correction.
- **NppStatus nppiGammaFwd_8u_C3IR** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed color in place forward gamma correction.
- **NppStatus nppiGammaFwd_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed color with alpha not in place forward gamma correction.
- **NppStatus nppiGammaFwd_8u_AC4IR** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed color with alpha in place forward gamma correction.
- **NppStatus nppiGammaFwd_8u_P3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst[3], int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar color not in place forward gamma correction.
- **NppStatus nppiGammaFwd_8u_IP3R** (**Npp8u** *const pSrcDst[3], int nSrcDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar color in place forward gamma correction.

GammaInv

Inverse gamma correction.

- **NppStatus nppiGammaInv_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed color not in place inverse gamma correction.
- **NppStatus nppiGammaInv_8u_C3IR** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned packed color in place inverse gamma correction.
- **NppStatus nppiGammaInv_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed color with alpha not in place inverse gamma correction.
- **NppStatus nppiGammaInv_8u_AC4IR** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI)

4 channel 8-bit unsigned packed color with alpha in place inverse gamma correction.

- **NppStatus nppiGammaInv_8u_P3R** (const **Npp8u** *const pSrc[3], int nSrcStep, **Npp8u** *pDst[3], int nDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar color not in place inverse gamma correction.

- **NppStatus nppiGammaInv_8u_IP3R** (**Npp8u** *const pSrcDst[3], int nSrcDstStep, **NppiSize** oSizeROI)

3 channel 8-bit unsigned planar color in place inverse gamma correction.

7.46.1 Detailed Description

Routines for correcting image color gamma.

7.46.2 Function Documentation

7.46.2.1 NppStatus nppiGammaFwd_8u_AC4IR (**Npp8u** **pSrcDst*, **int** *nSrcDstStep*, **NppiSize** *oSizeROI*)

4 channel 8-bit unsigned packed color with alpha in place forward gamma correction.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.2 NppStatus nppiGammaFwd_8u_AC4R (const **Npp8u** **pSrc*, **int** *nSrcStep*, **Npp8u** **pDst*, **int** *nDstStep*, **NppiSize** *oSizeROI*)

4 channel 8-bit unsigned packed color with alpha not in place forward gamma correction.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.3 NppStatus nppiGammaFwd_8u_C3IR (Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed color in place forward gamma correction.

Parameters:

pSrcDst in place packed pixel image pointer.
nSrcDstStep in place packed pixel format image line step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.4 NppStatus nppiGammaFwd_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed color not in place forward gamma correction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.5 NppStatus nppiGammaFwd_8u_IP3R (Npp8u *const *pSrcDst*[3], int *nSrcDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar color in place forward gamma correction.

Parameters:

pSrcDst in place planar pixel format image pointer array.
nSrcDstStep in place planar pixel format image line step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.6 NppStatus nppiGammaFwd_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar color not in place forward gamma correction.

Parameters:

pSrc source planar pixel format image pointer array.
nSrcStep source planar pixel format image line step.
pDst destination planar pixel format image pointer array.
nDstStep destination planar pixel format image line step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.7 NppStatus nppiGammaInv_8u_AC4IR (Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed color with alpha in place inverse gamma correction.

Parameters:

pSrcDst in place packed pixel format image pointer.
nSrcDstStep in place packed pixel format image line step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.8 NppStatus nppiGammaInv_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed color with alpha not in place inverse gamma correction.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.9 NppStatus nppiGammaInv_8u_C3IR (Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed color in place inverse gamma correction.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.10 NppStatus nppiGammaInv_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned packed color not in place inverse gamma correction.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.11 NppStatus nppiGammaInv_8u_IP3R (Npp8u *const *pSrcDst*[3], int *nSrcDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar color in place inverse gamma correction.

Parameters:

pSrcDst in place planar pixel format image pointer array.

nSrcDstStep in place planar pixel format image line step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.46.2.12 NppStatus nppiGammaInv_8u_P3R (const Npp8u *const *pSrc*[3], int *nSrcStep*, Npp8u **pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

3 channel 8-bit unsigned planar color not in place inverse gamma correction.

Parameters:

pSrc source planar pixel format image pointer array.
nSrcStep source planar pixel format image line step.
pDst destination planar pixel format image pointer array.
nDstStep destination planar pixel format image line step.
oSizeROI [Region-of-Interest \(ROI\)](#).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.47 Complement Color Key

Routines for performing complement color key replacement.

CompColorKey

Complement color key replacement.

- **NppStatus nppiCompColorKey_8u_C1R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nColorKeyConst)

1 channel 8-bit unsigned packed color complement color key replacement of source image 1 by source image 2.
- **NppStatus nppiCompColorKey_8u_C3R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nColorKeyConst[3])

3 channel 8-bit unsigned packed color complement color key replacement of source image 1 by source image 2.
- **NppStatus nppiCompColorKey_8u_C4R** (const **Npp8u** *pSrc1, int nSrc1Step, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nColorKeyConst[4])

4 channel 8-bit unsigned packed color complement color key replacement of source image 1 by source image 2.
- **NppStatus nppiAlphaCompColorKey_8u_AC4R** (const **Npp8u** *pSrc1, int nSrc1Step, **Npp8u** nAlpha1, const **Npp8u** *pSrc2, int nSrc2Step, **Npp8u** nAlpha2, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **Npp8u** nColorKeyConst[4], **NppiAlphaOp** nppAlphaOp)

4 channel 8-bit unsigned packed color complement color key replacement of source image 1 by source image 2 with alpha blending.

7.47.1 Detailed Description

Routines for performing complement color key replacement.

7.47.2 Function Documentation

7.47.2.1 NppStatus nppiAlphaCompColorKey_8u_AC4R (const **Npp8u** * *pSrc1*, int *nSrc1Step*, **Npp8u** *nAlpha1*, const **Npp8u** * *pSrc2*, int *nSrc2Step*, **Npp8u** *nAlpha2*, **Npp8u** * *pDst*, int *nDstStep*, **NppiSize** *oSizeROI*, **Npp8u** *nColorKeyConst[4]*, **NppiAlphaOp** *nppAlphaOp*)

4 channel 8-bit unsigned packed color complement color key replacement of source image 1 by source image 2 with alpha blending.

Parameters:

- pSrc1*** source1 packed pixel format image pointer.
- nSrc1Step*** source1 packed pixel format image line step.
- nAlpha1*** source1 image alpha opacity (0 - max channel pixel value).
- pSrc2*** source2 packed pixel format image pointer.

nSrc2Step source2 packed pixel format image line step.

nAlpha2 source2 image alpha opacity (0 - max channel pixel value).

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nColorKeyConst color key constant array

nppAlphaOp NppiAlphaOp alpha compositing operation selector (excluding premul ops).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.47.2.2 NppStatus nppiCompColorKey_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp8u nColorKeyConst)

1 channel 8-bit unsigned packed color complement color key replacement of source image 1 by source image 2.

Parameters:

pSrc1 source1 packed pixel format image pointer.

nSrc1Step source1 packed pixel format image line step.

pSrc2 source2 packed pixel format image pointer.

nSrc2Step source2 packed pixel format image line step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nColorKeyConst color key constant

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.47.2.3 NppStatus nppiCompColorKey_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp8u nColorKeyConst[3])

3 channel 8-bit unsigned packed color complement color key replacement of source image 1 by source image 2.

Parameters:

pSrc1 source1 packed pixel format image pointer.

nSrc1Step source1 packed pixel format image line step.

pSrc2 source2 packed pixel format image pointer.

nSrc2Step source2 packed pixel format image line step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nColorKeyConst color key constant array

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.47.2.4 NppStatus nppiCompColorKey_8u_C4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp8u nColorKeyConst[4])

4 channel 8-bit unsigned packed color complement color key replacement of source image 1 by source image 2.

Parameters:

pSrc1 source1 packed pixel format image pointer.
nSrc1Step source1 packed pixel format image line step.
pSrc2 source2 packed pixel format image pointer.
nSrc2Step source2 packed pixel format image line step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nColorKeyConst color key constant array

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.48 Color Processing

Routines for performing image color manipulation.

ColorTwist

Perform color twist pixel processing.

- **NppStatus nppiColorTwist32f_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp32f** twist[3][4])
3 channel 8-bit unsigned color twist.
- **NppStatus nppiColorTwist32f_8u_P3R** (const **Npp8u** *const *pSrc, int nSrcStep, **Npp8u** **pDst, int nDstStep, **NppSize** oSizeROI, const **Npp32f** twist[3][4])
3 channel planar 8-bit unsigned color twist.
- **NppStatus nppiColorTwist32f_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp32f** twist[3][4])
4 channel 8-bit unsigned color twist, not affecting Alpha.

ColorLUT

Perform image color processing using various types of color look up tables.

- **NppStatus nppiLUT_Linear_8u_C1R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp32s** *pValues, const **Npp32s** *pLevels, int nLevels)
8-bit unsigned look-up-table color conversion.
- **NppStatus nppiLUT_Linear_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp32s** *pValues[3], const **Npp32s** *pLevels[3], int nLevels[3])
3 channel 8-bit unsigned look-up-table color conversion.
- **NppStatus nppiLUT_Linear_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp32s** *pValues[4], const **Npp32s** *pLevels[4], int nLevels[4])
4 channel 8-bit unsigned look-up-table color conversion.
- **NppStatus nppiLUT_Linear_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp32s** *pValues[3], const **Npp32s** *pLevels[3], int nLevels[3])
4 channel 8-bit unsigned look-up-table color conversion, not affecting Alpha.

7.48.1 Detailed Description

Routines for performing image color manipulation.

7.48.2 Function Documentation

7.48.2.1 NppStatus nppiColorTwist32f_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *twist*[3][4])

4 channel 8-bit unsigned color twist, not affecting Alpha.

An input color twist matrix with floating-point pixel values is applied within ROI. Alpha channel is the last channel and is not processed.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

twist The color twist matrix with floating-point pixel values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.48.2.2 NppStatus nppiColorTwist32f_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *twist*[3][4])

3 channel 8-bit unsigned color twist.

An input color twist matrix with floating-point pixel values is applied within ROI.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

twist The color twist matrix with floating-point pixel values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.48.2.3 NppStatus nppiColorTwist32f_8u_P3R (const Npp8u *const * *pSrc*, int *nSrcStep*, Npp8u ** *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *twist*[3][4])

3 channel planar 8-bit unsigned color twist.

An input color twist matrix with floating-point pixel values is applied within ROI.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
twist The color twist matrix with floating-point pixel values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.48.2.4 NppStatus nppiLUT_Linear_8u_AC4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp32s * pValues[3], const Npp32s * pLevels[3], int nLevels[3])

4 channel 8-bit unsigned look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points through linear interpolation. Alpha channel is the last channel and is not processed.

>>>>> ATTENTION ATTENTION <<<<<<

NOTE: As of the 5.0 release of NPP, the pValues and pLevels pointers need to be host memory pointers to arrays of device memory pointers.

>>>>> <<<<<<

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pValues Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT values.
pLevels Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined INPUT values.
nLevels Host pointer to an array of 3 user defined input/output mapping points, one per color CHANNEL.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

- **NPP_LUT_NUMBER_OF_LEVELS_ERROR** if the number of levels is less than 2.

7.48.2.5 NppStatus nppiLUT_Linear_8u_C1R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppSize *oSizeROI*, const Npp32s * *pValues*, const Npp32s * *pLevels*, int *nLevels*)

8-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through linear interpolation.

>>>>> ATTENTION ATTENTION <<<<<

NOTE: As of the 5.0 release of NPP, the pValues and pLevels pointers need to be device memory pointers.

>>>>> <<<<<

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pValues Pointer to an array of user defined OUTPUT values (this is now a device memory pointer)

pLevels Pointer to an array of user defined INPUT values (this is now a device memory pointer)

nLevels Number of user defined input/output mapping points (levels)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

- [NPP_LUT_NUMBER_OF_LEVELS_ERROR](#) if the number of levels is less than 2.

7.48.2.6 NppStatus nppiLUT_Linear_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppSize *oSizeROI*, const Npp32s * *pValues[3]*, const Npp32s * *pLevels[3]*, int *nLevels[3]*)

3 channel 8-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through linear interpolation.

>>>>> ATTENTION ATTENTION <<<<<

NOTE: As of the 5.0 release of NPP, the pValues and pLevels pointers need to be host memory pointers to arrays of device memory pointers.

>>>>> <<<<<

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pValues Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT values.

pLevels Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined INPUT values.

nLevels Host pointer to an array of 3 user defined input/output mapping points, one per color CHANNEL.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

- **NPP_LUT_NUMBER_OF_LEVELS_ERROR** if the number of levels is less than 2.

7.48.2.7 NppStatus nppiLUT_Linear_8u_C4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppSize oSizeROI, const Npp32s * pValues[4], const Npp32s * pLevels[4], int nLevels[4])

4 channel 8-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through linear interpolation.

>>>>> ATTENTION ATTENTION <<<<<<

NOTE: As of the 5.0 release of NPP, the pValues and pLevels pointers need to be host memory pointers to arrays of device memory pointers.

>>>>> <<<<<<

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pValues Host pointer to an array of 4 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT values.

pLevels Host pointer to an array of 4 device memory pointers, one per color CHANNEL, pointing to user defined INPUT values.

nLevels Host pointer to an array of 4 user defined input/output mapping points, one per color CHANNEL.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

- **NPP_LUT_NUMBER_OF_LEVELS_ERROR** if the number of levels is less than 2.

7.49 Compression

Image compression primitives.

Modules

- [Quantization Functions](#)

7.49.1 Detailed Description

Image compression primitives.

The JPEG standard defines a flow of level shift, DCT and quantization for forward JPEG transform and inverse level shift, IDCT and de-quantization for inverse JPEG transform. This group has the functions for both forward and inverse functions.

7.50 Quantization Functions

Functions

- `NppStatus nppiQuantFwdRawTableInit_JPEG_8u (Npp8u *hpQuantRawTable, int nQualityFactor)`
Apply quality factor to raw 8-bit quantization table.
- `NppStatus nppiQuantFwdTableInit_JPEG_8u16u (const Npp8u *hpQuantRawTable, Npp16u *hpQuantFwdRawTable)`
Initializes a quantization table for `nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R()`.
- `NppStatus nppiQuantInvTableInit_JPEG_8u16u (const Npp8u *hpQuantRawTable, Npp16u *hpQuantFwdRawTable)`
Initializes a quantization table for `nppiDCTQuantInv8x8LS_JPEG_16s8u_C1R()`.
- `NppStatus nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R (const Npp8u *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, const Npp16u *pQuantFwdTable, NppiSize oSizeROI)`
Forward DCT, quantization and level shift part of the JPEG encoding.
- `NppStatus nppiDCTQuantInv8x8LS_JPEG_16s8u_C1R (const Npp16s *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, const Npp16u *pQuantInvTable, NppiSize oSizeROI)`
Inverse DCT, de-quantization and level shift part of the JPEG decoding.

7.50.1 Function Documentation

7.50.1.1 `NppStatus nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R (const Npp8u * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, const Npp16u * pQuantFwdTable, NppiSize oSizeROI)`

Forward DCT, quantization and level shift part of the JPEG encoding.

Input is expected in 8x8 macro blocks and output is expected to be in 64x1 macro blocks.

Parameters:

- `pSrc` Source-Image Pointer.
- `nSrcStep` Source-Image Line Step.
- `pDst` Destination-Image Pointer.
- `nDstStep` Destination-Image Line Step.
- `pQuantFwdTable` Forward quantization tables for JPEG encoding created using `nppiQuantInvTableInit_JPEG_8u16u()`.
- `oSizeROI` Region-of-Interest (ROI).

Returns:

Error codes:

- `NPP_SIZE_ERROR` For negative input height/width or not a multiple of 8 width/height.
- `NPP_STEP_ERROR` If input image width is not multiple of 8 or does not match ROI.
- `NPP_NULL_POINTER_ERROR` If the destination pointer is 0.

7.50.1.2 NppStatus nppiDCTQuantInv8x8LS_JPEG_16s8u_C1R (const Npp16s * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, const Npp16u * *pQuantInvTable*, NppiSize *oSizeROI*)

Inverse DCT, de-quantization and level shift part of the JPEG decoding.

Input is expected in 64x1 macro blocks and output is expected to be in 8x8 macro blocks.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pQuantInvTable Inverse quantization tables for JPEG decoding created using [nppiQuantInvTableInit_JPEG_8u16u\(\)](#).
oSizeROI Region-of-Interest (ROI).

Returns:

Error codes:

- [NPP_SIZE_ERROR](#) For negative input height/width or not a multiple of 8 width/height.
- [NPP_STEP_ERROR](#) If input image width is not multiple of 8 or does not match ROI.
- [NPP_NULL_POINTER_ERROR](#) If the destination pointer is 0.

7.50.1.3 NppStatus nppiQuantFwdRawTableInit_JPEG_8u (Npp8u * *hpQuantRawTable*, int *nQualityFactor*)

Apply quality factor to raw 8-bit quantization table.

This is effectively and in-place method that modifies a given raw quantization table based on a quality factor. Note that this method is a host method and that the pointer to the raw quantization table is a host pointer.

Parameters:

hpQuantRawTable Raw quantization table.
nQualityFactor Quality factor for the table. Range is [1:100].

Returns:

Error code: [NPP_NULL_POINTER_ERROR](#) is returned if *hpQuantRawTable* is 0.

7.50.1.4 NppStatus nppiQuantFwdTableInit_JPEG_8u16u (const Npp8u * *hpQuantRawTable*, Npp16u * *hpQuantFwdRawTable*)

Initializes a quantization table for [nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R\(\)](#).

The method creates a 16-bit version of the raw table and converts the data order from zigzag layout to original row-order layout since raw quantization tables are typically stored in zigzag format.

This method is a host method. It consumes and produces host data. I.e. the pointers passed to this function must be host pointers. The resulting table needs to be transferred to device memory in order to be used with [nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R\(\)](#) function.

Parameters:

hpQuantRawTable Host pointer to raw quantization table as returned by [nppiQuantFwdRawTableInit_JPEG_8u\(\)](#). The raw quantization table is assumed to be in zigzag order.

hpQuantFwdRawTable Forward quantization table for use with [nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R\(\)](#).

Returns:

Error code: [NPP_NULL_POINTER_ERROR](#) pQuantRawTable is 0.

7.50.1.5 NppStatus nppiQuantInvTableInit_JPEG_8u16u (const Npp8u * *hpQuantRawTable*, Npp16u * *hpQuantFwdRawTable*)

Initializes a quantization table for [nppiDCTQuantInv8x8LS_JPEG_16s8u_C1R\(\)](#).

The [nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R\(\)](#) method uses a quantization table in a 16-bit format allowing for faster processing. In addition it converts the data order from zigzag layout to original row-order layout. Typically raw quantization tables are stored in zigzag format.

This method is a host method and consumes and produces host data. I.e. the pointers passed to this function must be host pointers. The resulting table needs to be transferred to device memory in order to be used with [nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R\(\)](#) function.

Parameters:

hpQuantRawTable Raw quantization table.

hpQuantFwdRawTable Inverse quantization table.

Returns:

[NPP_NULL_POINTER_ERROR](#) pQuantRawTable or pQuantFwdRawTable is 0.

7.51 Labeling and Segmentation

Pixel labeling and image segmentation operations.

Modules

- [GraphCut](#)

Typedefs

- `typedef struct NppiGraphcutState NppiGraphcutState`

7.51.1 Detailed Description

Pixel labeling and image segmentation operations.

7.51.2 Typedef Documentation

7.51.2.1 `typedef struct NppiGraphcutState NppiGraphcutState`

7.52 GraphCut

Graphcut

- **NppStatus nppiGraphcutGetSize (NppiSize oSize, int *pBufSize)**

Calculates the size of the temporary buffer for graph-cut with 4 neighborhood labeling.

- **NppStatus nppiGraphcut8GetSize (NppiSize oSize, int *pBufSize)**

Calculates the size of the temporary buffer for graph-cut with 8 neighborhood labeling.

- **NppStatus nppiGraphcutInitAlloc (NppiSize oSize, NppiGraphcutState **ppState, Npp8u *pDeviceMem)**

Initializes graph-cut state structure and allocates additional resources for graph-cut with 8 neighborhood labeling.

- **NppStatus nppiGraphcut8InitAlloc (NppiSize oSize, NppiGraphcutState **ppState, Npp8u *pDeviceMem)**

Allocates and initializes the graph-cut state structure and additional resources for graph-cut with 8 neighborhood labeling.

- **NppStatus nppiGraphcutFree (NppiGraphcutState *pState)**

Frees the additional resources of the graph-cut state structure.

- **NppStatus nppiGraphcut_32s8u (Npp32s *pTerminals, Npp32s *pLeftTransposed, Npp32s *pRightTransposed, Npp32s *pTop, Npp32s *pBottom, int nStep, int nTransposedStep, NppiSize size, Npp8u *pLabel, int nLabelStep, NppiGraphcutState *pState)**

Graphcut of a flow network (32bit signed integer edge capacities).

- **NppStatus nppiGraphcut8_32s8u (Npp32s *pTerminals, Npp32s *pLeftTransposed, Npp32s *pRightTransposed, Npp32s *pTop, Npp32s *pTopLeft, Npp32s *pTopRight, Npp32s *pBottom, Npp32s *pBottomLeft, Npp32s *pBottomRight, int nStep, int nTransposedStep, NppiSize size, Npp8u *pLabel, int nLabelStep, NppiGraphcutState *pState)**

Graphcut of a flow network (32bit signed integer edge capacities).

- **NppStatus nppiGraphcut_32f8u (Npp32f *pTerminals, Npp32f *pLeftTransposed, Npp32f *pRightTransposed, Npp32f *pTop, Npp32f *pBottom, int nStep, int nTransposedStep, NppiSize size, Npp8u *pLabel, int nLabelStep, NppiGraphcutState *pState)**

Graphcut of a flow network (32bit float edge capacities).

- **NppStatus nppiGraphcut8_32f8u (Npp32f *pTerminals, Npp32f *pLeftTransposed, Npp32f *pRightTransposed, Npp32f *pTop, Npp32f *pTopLeft, Npp32f *pTopRight, Npp32f *pBottom, Npp32f *pBottomLeft, Npp32f *pBottomRight, int nStep, int nTransposedStep, NppiSize size, Npp8u *pLabel, int nLabelStep, NppiGraphcutState *pState)**

Graphcut of a flow network (32bit float edge capacities).

7.52.1 Function Documentation

**7.52.1.1 NppStatus nppiGraphcut8_32f8u (Npp32f * pTerminals, Npp32f * pLeftTransposed,
Npp32f * pRightTransposed, Npp32f * pTop, Npp32f * pTopLeft, Npp32f * pTopRight,
Npp32f * pBottom, Npp32f * pBottomLeft, Npp32f * pBottomRight, int nStep, int
nTransposedStep, NppiSize size, Npp8u * pLabel, int nLabelStep, NppiGraphcutState *
pState)**

Graphcut of a flow network (32bit float edge capacities).

The function computes the minimal cut (graphcut) of a 2D regular 8-connected graph. The inputs are the capacities of the horizontal (in transposed form), vertical and terminal (source and sink) edges. The capacities to source and sink are stored as capacity differences in the terminals array (terminals(x) = source(x) - sink(x)). The implementation assumes that the edge capacities for boundary edges that would connect to nodes outside the specified domain are set to 0 (for example left(0,*) == 0). If this is not fulfilled the computed labeling may be wrong! The computed binary labeling is encoded as unsigned 8bit values (0 and >0).

See also:

[nppiGraphcut8InitAlloc\(\)](#), [nppiGraphcutFree\(\)](#), [nppiGraphcut8GetSize\(\)](#).

Parameters:

pTerminals Pointer to differences of terminal edge capacities (terminal(x) = source(x) - sink(x))
pLeftTransposed Pointer to transposed left edge capacities (left(0,*) must be 0)
pRightTransposed Pointer to transposed right edge capacities (right(width-1,*) must be 0)
pTop Pointer to top edge capacities (top(*,0) must be 0)
pTopLeft Pointer to top left edge capacities (topleft(*,0) & topleft(0,*) must be 0)
pTopRight Pointer to top right edge capacities (topright(*,0) & topright(width-1,*) must be 0)
pBottom Pointer to bottom edge capacities (bottom(*,height-1) must be 0)
pBottomLeft Pointer to bottom left edge capacities (bottomleft(*,height-1) && bottomleft(0,*) must be 0)
pBottomRight Pointer to bottom right edge capacities (bottomright(*,height-1) && bottomright(width-1,*) must be 0)
nStep Step in bytes between any pair of sequential rows of edge capacities
nTransposedStep Step in bytes between any pair of sequential rows of tranposed edge capacities
size Graph size
pLabel Pointer to destination label image
nLabelStep Step in bytes between any pair of sequential rows of label image
pState Pointer to graph-cut state structure. This structure must be initialized allocated and initialized using [nppiGraphcut8InitAlloc\(\)](#).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.52.1.2 NppStatus nppiGraphcut8_32s8u (Npp32s * pTerminals, Npp32s * pLeftTransposed, Npp32s * pRightTransposed, Npp32s * pTop, Npp32s * pTopLeft, Npp32s * pTopRight, Npp32s * pBottom, Npp32s * pBottomLeft, Npp32s * pBottomRight, int nStep, int nTransposedStep, NppiSize size, Npp8u * pLabel, int nLabelStep, NppiGraphcutState * pState)

Graphcut of a flow network (32bit signed integer edge capacities).

The function computes the minimal cut (graphcut) of a 2D regular 8-connected graph. The inputs are the capacities of the horizontal (in transposed form), vertical and terminal (source and sink) edges. The capacities to source and sink are stored as capacity differences in the terminals array (terminals(x) = source(x) - sink(x)). The implementation assumes that the edge capacities for boundary edges that would connect to nodes outside the specified domain are set to 0 (for example left(0,*) == 0). If this is not fulfilled the computed labeling may be wrong! The computed binary labeling is encoded as unsigned 8bit values (0 and >0).

See also:

[nppiGraphcut8InitAlloc\(\)](#), [nppiGraphcutFree\(\)](#), [nppiGraphcut8GetSize\(\)](#).

Parameters:

pTerminals Pointer to differences of terminal edge capacities (terminal(x) = source(x) - sink(x))
pLeftTransposed Pointer to transposed left edge capacities (left(0,*) must be 0)
pRightTransposed Pointer to transposed right edge capacities (right(width-1,*) must be 0)
pTop Pointer to top edge capacities (top(*,0) must be 0)
pTopLeft Pointer to top left edge capacities (topleft(*,0) & topleft(0,*) must be 0)
pTopRight Pointer to top right edge capacities (topright(*,0) & topright(width-1,*) must be 0)
pBottom Pointer to bottom edge capacities (bottom(*,height-1) must be 0)
pBottomLeft Pointer to bottom left edge capacities (bottomleft(*,height-1) && bottomleft(0,*) must be 0)
pBottomRight Pointer to bottom right edge capacities (bottomright(*,height-1) && bottomright(width-1,*) must be 0)
nStep Step in bytes between any pair of sequential rows of edge capacities
nTransposedStep Step in bytes between any pair of sequential rows of tranposed edge capacities
size Graph size
pLabel Pointer to destination label image
nLabelStep Step in bytes between any pair of sequential rows of label image
pState Pointer to graph-cut state structure. This structure must be initialized allocated and initialized using [nppiGraphcut8InitAlloc\(\)](#).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.52.1.3 NppStatus nppiGraphcut8GetSize (NppiSize oSize, int * pBufSize)

Calculates the size of the temporary buffer for graph-cut with 8 neighborhood labeling.

See also:

[nppiGraphcut8InitAlloc\(\)](#), [nppiGraphcut8_32s8u\(\)](#).

Parameters:

oSize Graph size.

pBufSize Pointer to variable that returns the size of the temporary buffer.

Returns:

NPP_SUCCESS Indicates no error. Any other value indicates an error or a warning

NPP_SIZE_ERROR Indicates an error condition if any image dimension has zero or negative value

NPP_NULL_POINTER_ERROR Indicates an error condition if pBufSize pointer is NULL

7.52.1.4 NppStatus nppiGraphcut8InitAlloc (NppiSize *oSize*, NppiGraphcutState ** *ppState*, Npp8u * *pDeviceMem*)

Allocates and initializes the graph-cut state structure and additional resources for graph-cut with 8 neighborhood labeling.

See also:

[nppiGraphcut8_32s8u\(\)](#), [nppiGraphcut8GetSize\(\)](#).

Parameters:

oSize Graph size

ppState Pointer to pointer to graph-cut state structure.

pDeviceMem to the sufficient amount of device memory. The CUDA runtime or NPP memory allocators must be used to allocate this memory. The minimum amount of device memory required to run graph-cut on a for a specific image size is computed by [nppiGraphcut8GetSize\(\)](#).

Returns:

NPP_SUCCESS Indicates no error. Any other value indicates an error or a warning

NPP_SIZE_ERROR Indicates an error condition if any image dimension has zero or negative value

NPP_NULL_POINTER_ERROR Indicates an error condition if pBufSize pointer is NULL

7.52.1.5 NppStatus nppiGraphcut_32f8u (Npp32f * *pTerminals*, Npp32f * *pLeftTransposed*, Npp32f * *pRightTransposed*, Npp32f * *pTop*, Npp32f * *pBottom*, int *nStep*, int *nTransposedStep*, NppiSize *size*, Npp8u * *pLabel*, int *nLabelStep*, NppiGraphcutState * *pState*)

Graphcut of a flow network (32bit float edge capacities).

The function computes the minimal cut (graphcut) of a 2D regular 4-connected graph. The inputs are the capacities of the horizontal (in transposed form), vertical and terminal (source and sink) edges. The capacities to source and sink are stored as capacity differences in the terminals array (terminals(x) = source(x) - sink(x)). The implementation assumes that the edge capacities for boundary edges that would connect to nodes outside the specified domain are set to 0 (for example left(0,*) == 0). If this is not fulfilled the computed labeling may be wrong! The computed binary labeling is encoded as unsigned 8bit values (0 and >0).

See also:

[nppiGraphcutInitAlloc\(\)](#), [nppiGraphcutFree\(\)](#), [nppiGraphcutGetSize\(\)](#).

Parameters:

pTerminals Pointer to differences of terminal edge capacities ($\text{terminal}(x) = \text{source}(x) - \text{sink}(x)$)
pLeftTransposed Pointer to transposed left edge capacities ($\text{left}(0,*)$ must be 0)
pRightTransposed Pointer to transposed right edge capacities ($\text{right}(\text{width}-1,*)$ must be 0)
pTop Pointer to top edge capacities ($\text{top}(*,0)$ must be 0)
pBottom Pointer to bottom edge capacities ($\text{bottom}(*,\text{height}-1)$ must be 0)
nStep Step in bytes between any pair of sequential rows of edge capacities
nTransposedStep Step in bytes between any pair of sequential rows of tranposed edge capacities
size Graph size
pLabel Pointer to destination label image
nLabelStep Step in bytes between any pair of sequential rows of label image
pState Pointer to graph-cut state structure. This structure must be initialized allocated and initialized using [nppiGraphcutInitAlloc\(\)](#).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.52.1.6 NppStatus nppiGraphcut_32s8u (Npp32s * *pTerminals*, Npp32s * *pLeftTransposed*, Npp32s * *pRightTransposed*, Npp32s * *pTop*, Npp32s * *pBottom*, int *nStep*, int *nTransposedStep*, NppiSize *size*, Npp8u * *pLabel*, int *nLabelStep*, NppiGraphcutState * *pState*)

Graphcut of a flow network (32bit signed integer edge capacities).

The function computes the minimal cut (graphcut) of a 2D regular 4-connected graph. The inputs are the capacities of the horizontal (in transposed form), vertical and terminal (source and sink) edges. The capacities to source and sink are stored as capacity differences in the terminals array ($\text{terminals}(x) = \text{source}(x) - \text{sink}(x)$). The implementation assumes that the edge capacities for boundary edges that would connect to nodes outside the specified domain are set to 0 (for example $\text{left}(0,*) == 0$). If this is not fulfilled the computed labeling may be wrong! The computed binary labeling is encoded as unsigned 8bit values (0 and >0).

See also:

[nppiGraphcutInitAlloc\(\)](#), [nppiGraphcutFree\(\)](#), [nppiGraphcutGetSize\(\)](#).

Parameters:

pTerminals Pointer to differences of terminal edge capacities ($\text{terminal}(x) = \text{source}(x) - \text{sink}(x)$)
pLeftTransposed Pointer to transposed left edge capacities ($\text{left}(0,*)$ must be 0)
pRightTransposed Pointer to transposed right edge capacities ($\text{right}(\text{width}-1,*)$ must be 0)
pTop Pointer to top edge capacities ($\text{top}(*,0)$ must be 0)
pBottom Pointer to bottom edge capacities ($\text{bottom}(*,\text{height}-1)$ must be 0)
nStep Step in bytes between any pair of sequential rows of edge capacities

nTransposedStep Step in bytes between any pair of sequential rows of tranposed edge capacities
size Graph size
pLabel Pointer to destination label image
nLabelStep Step in bytes between any pair of sequential rows of label image
pState Pointer to graph-cut state structure. This structure must be initialized allocated and initialized using [nppiGraphcutInitAlloc\(\)](#).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.52.1.7 NppStatus nppiGraphcutFree (NppiGraphcutState * *pState*)

Frees the additional resources of the graph-cut state structure.

See also:

[nppiGraphcutInitAlloc](#)
[nppiGraphcut8InitAlloc](#)

Parameters:

pState Pointer to graph-cut state structure.

Returns:

NPP_SUCCESS Indicates no error. Any other value indicates an error or a warning
NPP_SIZE_ERROR Indicates an error condition if any image dimension has zero or negative value
NPP_NULL_POINTER_ERROR Indicates an error condition if pState pointer is NULL

7.52.1.8 NppStatus nppiGraphcutGetSize (NppiSize *oSize*, int * *pBufSize*)

Calculates the size of the temporary buffer for graph-cut with 4 neighborhood labeling.

See also:

[nppiGraphcutInitAlloc\(\)](#), [nppiGraphcut_32s8u\(\)](#).

Parameters:

oSize Graph size.

pBufSize Pointer to variable that returns the size of the temporary buffer.

Returns:

NPP_SUCCESS Indicates no error. Any other value indicates an error or a warning
NPP_SIZE_ERROR Indicates an error condition if any image dimension has zero or negative value
NPP_NULL_POINTER_ERROR Indicates an error condition if pBufSize pointer is NULL

7.52.1.9 NppStatus nppiGraphcutInitAlloc (NppiSize *oSize*, NppiGraphcutState ** *ppState*, Npp8u * *pDeviceMem*)

Initializes graph-cut state structure and allocates additional resources for graph-cut with 8 neighborhood labeling.

See also:

[nppiGraphcut_32s8u\(\)](#), [nppiGraphcutGetSize\(\)](#).

Parameters:

oSize Graph size

ppState Pointer to pointer to graph-cut state structure.

pDeviceMem pDeviceMem to the sufficient amount of device memory. The CUDA runtime or NPP memory allocators must be used to allocate this memory. The minimum amount of device memory required to run graph-cut on a for a specific image size is computed by [nppiGraphcutGetSize\(\)](#).

Returns:

NPP_SUCCESS Indicates no error. Any other value indicates an error or a warning

NPP_SIZE_ERROR Indicates an error condition if any image dimension has zero or negative value

NPP_NULL_POINTER_ERROR Indicates an error condition if pBufSize pointer is NULL

7.53 Data Exchange and Initialization

Primitives for initialization, copying and converting image data.

Modules

- [Set](#)
- [Copy](#)
- [Convert](#)
- [Copy Constant Border](#)
- [Transpose And Swap Channels](#)

7.53.1 Detailed Description

Primitives for initialization, copying and converting image data.

7.54 Set

Image-Memory Set

Set methods for images of various types.

Images are passed to these primitives via a pointer to the image data (first pixel in the ROI) and a step-width, i.e. the number of bytes between successive lines. The size of the area to be set (region-of-interest, ROI) is specified via a `NppiSize` struct. In addition to the image data and ROI, all methods have a parameter to specify the value being set. In case of single channel images this is a single value, in case of multi-channel, an array of values is passed.

- `NppStatus nppiSet_8s_C1R (Npp8s nValue, Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
8-bit image set.
- `NppStatus nppiSet_8s_C2R (Npp8s aValue[2], Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
8-bit two-channel image set.
- `NppStatus nppiSet_8s_C3R (Npp8s aValue[3], Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
8-bit three-channel image set.
- `NppStatus nppiSet_8s_C4R (Npp8s aValue[4], Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
8-bit four-channel image set.
- `NppStatus nppiSet_8s_AC4R (Npp8s aValue[3], Npp8s *pDst, int nDstStep, NppiSize oSizeROI)`
8-bit four-channel image set ignoring alpha channel.
- `NppStatus nppiSet_8u_C1R (Npp8u nValue, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
8-bit unsigned image set.
- `NppStatus nppiSet_8u_C1MR (Npp8u nValue, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp8u *pMask, int nMaskStep)`
Masked 8-bit unsigned image set.
- `NppStatus nppiSet_8u_C4R (const Npp8u aValues[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
4 channel 8-bit unsigned image set.
- `NppStatus nppiSet_8u_C4MR (const Npp8u aValues[4], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp8u *pMask, int nMaskStep)`
Masked 4 channel 8-bit unsigned image set.
- `NppStatus nppiSet_8u_AC4R (const Npp8u aValues[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
4 channel 8-bit unsigned image set method, not affecting Alpha channel.
- `NppStatus nppiSet_8u_AC4MR (const Npp8u aValues[3], Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp8u *pMask, int nMaskStep)`
Masked 4 channel 8-bit unsigned image set method, not affecting Alpha channel.
- `NppStatus nppiSet_8u_C4CR (Npp8u nValue, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`

4 channel 8-bit unsigned image set affecting only single channel.

- **NppStatus nppiSet_16u_C1R** (*Npp16u* nValue, *Npp16u* *pDst, int nDstStep, *NppiSize* oSizeROI)
16-bit unsigned image set.
- **NppStatus nppiSet_16u_C1MR** (*Npp16u* nValue, *Npp16u* *pDst, int nDstStep, *NppiSize* oSizeROI, const *Npp8u* *pMask, int nMaskStep)
Masked 16-bit unsigned image set.
- **NppStatus nppiSet_16u_C2R** (const *Npp16u* aValues[2], *Npp16u* *pDst, int nDstStep, *NppiSize* oSizeROI)
2 channel 16-bit unsigned image set.
- **NppStatus nppiSet_16u_C4R** (const *Npp16u* aValues[4], *Npp16u* *pDst, int nDstStep, *NppiSize* oSizeROI)
4 channel 16-bit unsigned image set.
- **NppStatus nppiSet_16u_C4MR** (const *Npp16u* aValues[4], *Npp16u* *pDst, int nDstStep, *NppiSize* oSizeROI, const *Npp8u* *pMask, int nMaskStep)
Masked 4 channel 16-bit unsigned image set.
- **NppStatus nppiSet_16u_AC4R** (const *Npp16u* aValues[3], *Npp16u* *pDst, int nDstStep, *NppiSize* oSizeROI)
4 channel 16-bit unsigned image set method, not affecting Alpha channel.
- **NppStatus nppiSet_16u_AC4MR** (const *Npp16u* aValues[3], *Npp16u* *pDst, int nDstStep, *NppiSize* oSizeROI, const *Npp8u* *pMask, int nMaskStep)
Masked 4 channel 16-bit unsigned image set method, not affecting Alpha channel.
- **NppStatus nppiSet_16u_C4CR** (*Npp16u* nValue, *Npp16u* *pDst, int nDstStep, *NppiSize* oSizeROI)
4 channel 16-bit unsigned image set affecting only single channel.
- **NppStatus nppiSet_16s_C1R** (*Npp16s* nValue, *Npp16s* *pDst, int nDstStep, *NppiSize* oSizeROI)
16-bit image set.
- **NppStatus nppiSet_16s_C1MR** (*Npp16s* nValue, *Npp16s* *pDst, int nDstStep, *NppiSize* oSizeROI, const *Npp8u* *pMask, int nMaskStep)
Masked 16-bit image set.
- **NppStatus nppiSet_16s_C2R** (const *Npp16s* aValues[2], *Npp16s* *pDst, int nDstStep, *NppiSize* oSizeROI)
2 channel 16-bit image set.
- **NppStatus nppiSet_16s_C4R** (const *Npp16s* aValues[4], *Npp16s* *pDst, int nDstStep, *NppiSize* oSizeROI)
4 channel 16-bit image set.
- **NppStatus nppiSet_16s_C4MR** (const *Npp16s* aValues[4], *Npp16s* *pDst, int nDstStep, *NppiSize* oSizeROI, const *Npp8u* *pMask, int nMaskStep)
Masked 4 channel 16-bit image set.

- **NppStatus nppiSet_16s_AC4R** (const **Npp16s** aValues[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)
4 channel 16-bit image set method, not affecting Alpha channel.
- **NppStatus nppiSet_16s_AC4MR** (const **Npp16s** aValues[3], **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)
Masked 4 channel 16-bit image set method, not affecting Alpha channel.
- **NppStatus nppiSet_16s_C4CR** (**Npp16sc** nValue, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI)
4 channel 16-bit unsigned image set affecting only single channel.
- **NppStatus nppiSet_16sc_C1R** (**Npp16sc** oValue, **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI)
16-bit complex integer image set.
- **NppStatus nppiSet_16sc_C2R** (**Npp16sc** aValue[2], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI)
16-bit complex integer two-channel image set.
- **NppStatus nppiSet_16sc_C3R** (**Npp16sc** aValue[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI)
16-bit complex integer three-channel image set.
- **NppStatus nppiSet_16sc_AC4R** (**Npp16sc** aValue[3], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI)
16-bit complex integer four-channel image set ignoring alpha.
- **NppStatus nppiSet_16sc_C4R** (**Npp16sc** aValue[4], **Npp16sc** *pDst, int nDstStep, **NppiSize** oSizeROI)
16-bit complex integer four-channel image set.
- **NppStatus nppiSet_32s_C1R** (**Npp32s** nValue, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
32-bit image set.
- **NppStatus nppiSet_32s_C1MR** (**Npp32s** nValue, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)
Masked 32-bit image set.
- **NppStatus nppiSet_32s_C4R** (const **Npp32s** aValues[4], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
4 channel 32-bit image set.
- **NppStatus nppiSet_32s_C4MR** (const **Npp32s** aValues[4], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)
Masked 4 channel 32-bit image set.
- **NppStatus nppiSet_32s_AC4R** (const **Npp32s** aValues[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
4 channel 16-bit image set method, not affecting Alpha channel.

- **NppStatus nppiSet_32s_AC4MR** (const **Npp32s** aValues[3], **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked 4 channel 16-bit image set method, not affecting Alpha channel.
- **NppStatus nppiSet_32s_C4CR** (**Npp32s** nValue, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 32-bit unsigned image set affecting only single channel.
- **NppStatus nppiSet_32sc_C1R** (**Npp32sc** oValue, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 32-bit complex integer image set.
- **NppStatus nppiSet_32sc_C2R** (**Npp32sc** aValue[2], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Two channel 32-bit complex integer image set.
- **NppStatus nppiSet_32sc_C3R** (**Npp32sc** aValue[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three channel 32-bit complex integer image set.
- **NppStatus nppiSet_32sc_C4R** (**Npp32sc** aValue[4], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four channel 32-bit complex integer image set.
- **NppStatus nppiSet_32sc_AC4R** (**Npp32sc** aValue[3], **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

32-bit complex integer four-channel image set ignoring alpha.
- **NppStatus nppiSet_32f_C1R** (**Npp32f** nValue, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

32-bit floating point image set.
- **NppStatus nppiSet_32f_C1MR** (**Npp32f** nValue, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked 32-bit floating point image set.
- **NppStatus nppiSet_32f_C4R** (const **Npp32f** aValues[4], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 32-bit floating point image set.
- **NppStatus nppiSet_32f_C4MR** (const **Npp32f** aValues[4], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked 4 channel 32-bit floating point image set.
- **NppStatus nppiSet_32f_AC4R** (const **Npp32f** aValues[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 32-bit floating point image set method, not affecting Alpha channel.
- **NppStatus nppiSet_32f_AC4MR** (const **Npp32f** aValues[3], **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked 4 channel 32-bit floating point image set method, not affecting Alpha channel.
- **NppStatus nppiSet_32f_C4CR** (**Npp32f** nValue, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 32-bit floating point image set affecting only single channel.

- **NppStatus nppiSet_32fc_C1R** (**Npp32fc oValue**, **Npp32fc *pDst**, **int nDstStep**, **NppiSize oSizeROI**)

Single channel 32-bit complex image set.

- **NppStatus nppiSet_32fc_C2R** (**Npp32fc aValue[2]**, **Npp32fc *pDst**, **int nDstStep**, **NppiSize oSizeROI**)

Two channel 32-bit complex image set.

- **NppStatus nppiSet_32fc_C3R** (**Npp32fc aValue[3]**, **Npp32fc *pDst**, **int nDstStep**, **NppiSize oSizeROI**)

Three channel 32-bit complex image set.

- **NppStatus nppiSet_32fc_C4R** (**Npp32fc aValue[4]**, **Npp32fc *pDst**, **int nDstStep**, **NppiSize oSizeROI**)

Four channel 32-bit complex image set.

- **NppStatus nppiSet_32fc_AC4R** (**Npp32fc aValue[3]**, **Npp32fc *pDst**, **int nDstStep**, **NppiSize oSizeROI**)

32-bit complex four-channel image set ignoring alpha.

7.54.1 Function Documentation

7.54.1.1 NppStatus nppiSet_16s_AC4MR (const Npp16s *aValues*[3], Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u **pMask*, int *nMaskStep*)

Masked 4 channel 16-bit image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.2 NppStatus nppiSet_16s_AC4R (const Npp16s *aValues*[3], Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.3 NppStatus nppiSet_16s_C1MR (Npp16s *nValue*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 16-bit image set.

Parameters:

nValue New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.
nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.4 NppStatus nppiSet_16s_C1R (Npp16s *nValue*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit image set.

Parameters:

nValue New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.5 NppStatus nppiSet_16s_C2R (const Npp16s *aValues*[2], Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 16-bit image set.

Parameters:

aValues New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.6 NppStatus nppiSet_16s_C4CR (Npp16s *nValue*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit unsigned image set affecting only single channel.

For RGBA images, this method allows setting of a single of the four (RGBA) values without changing the contents of the other three channels. The channel is selected via the pDst pointer. The pointer needs to point to the actual first value to be set, e.g. in order to set the R-channel (first channel), one would pass pDst unmodified, since its value actually points to the r channel. If one wanted to modify the B channel (second channel), one would pass pDst + 2 to the function.

Parameters:

nValue The pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.7 NppStatus nppiSet_16s_C4MR (const Npp16s *aValues*[4], Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u **pMask*, int *nMaskStep*)

Masked 4 channel 16-bit image set.

Parameters:

aValues New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.8 NppStatus nppiSet_16s_C4R (const Npp16s *aValues*[4], Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit image set.

Parameters:

aValues New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.9 NppStatus nppiSet_16sc_AC4R (Npp16sc *aValue*[3], Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit complex integer four-channel image set ignoring alpha.

Parameters:

aValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.10 NppStatus nppiSet_16sc_C1R (Npp16sc *oValue*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit complex integer image set.

Parameters:

oValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.11 NppStatus nppiSet_16sc_C2R (Npp16sc *aValue*[2], Npp16sc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit complex integer two-channel image set.

Parameters:

aValue New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.12 NppStatus nppiSet_16sc_C3R (Npp16sc *aValue*[3], Npp16sc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit complex integer three-channel image set.

Parameters:

aValue New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.13 NppStatus nppiSet_16sc_C4R (Npp16sc *aValue*[4], Npp16sc **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit complex integer four-channel image set.

Parameters:

aValue New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.14 NppStatus nppiSet_16u_AC4MR (const Npp16u *aValues*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 4 channel 16-bit unsigned image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.15 NppStatus nppiSet_16u_AC4R (const Npp16u *aValues*[3], Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit unsigned image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.16 NppStatus nppiSet_16u_C1MR (Npp16u *nValue*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 16-bit unsigned image set.

Parameters:

nValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.17 NppStatus nppiSet_16u_C1R (Npp16u *nValue*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit unsigned image set.

Parameters:

nValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.18 NppStatus nppiSet_16u_C2R (const Npp16u *aValues*[2], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 16-bit unsigned image set.

Parameters:

aValues New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.19 NppStatus nppiSet_16u_C4CR (Npp16u *nValue*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit unsigned image set affecting only single channel.

For RGBA images, this method allows setting of a single of the four (RGBA) values without changing the contents of the other three channels. The channel is selected via the pDst pointer. The pointer needs to point to the actual first value to be set, e.g. in order to set the R-channel (first channel), one would pass pDst unmodified, since its value actually points to the r channel. If one wanted to modify the B channel (second channel), one would pass pDst + 2 to the function.

Parameters:

nValue The pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.20 NppStatus nppiSet_16u_C4MR (const Npp16u *aValues*[4], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u **pMask*, int *nMaskStep*)

Masked 4 channel 16-bit unsigned image set.

Parameters:

aValues New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.
nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.21 NppStatus nppiSet_16u_C4R (const Npp16u *aValues*[4], Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit unsigned image set.

Parameters:

aValues New pixel value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.22 NppStatus nppiSet_32f_AC4MR (const Npp32f *aValues*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 4 channel 32-bit floating point image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.23 NppStatus nppiSet_32f_AC4R (const Npp32f *aValues*[3], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit floating point image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.24 NppStatus nppiSet_32f_C1MR (Npp32f *nValue*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 32-bit floating point image set.

Parameters:

nValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.25 NppStatus nppiSet_32f_C1R (Npp32f *nValue*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit floating point image set.

Parameters:

nValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.26 NppStatus nppiSet_32f_C4CR (Npp32f *nValue*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit floating point image set affecting only single channel.

For RGBA images, this method allows setting of a single of the four (RGBA) values without changing the contents of the other three channels. The channel is selected via the pDst pointer. The pointer needs to point to the actual first value to be set, e.g. in order to set the R-channel (first channel), one would pass pDst unmodified, since its value actually points to the r channel. If one wanted to modify the B channel (second channel), one would pass pDst + 2 to the function.

Parameters:

nValue The pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.27 NppStatus nppiSet_32f_C4MR (const Npp32f *aValues*[4], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 4 channel 32-bit floating point image set.

Parameters:

aValues New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.28 NppStatus nppiSet_32f_C4R (const Npp32f *aValues*[4], Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit floating point image set.

Parameters:

aValues New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.29 NppStatus nppiSet_32fc_AC4R (Npp32fc *aValue*[3], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit complex four-channel image set ignoring alpha.

Parameters:

aValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.30 NppStatus nppiSet_32fc_C1R (Npp32fc *oValue*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 32-bit complex image set.

Parameters:

- oValue* The pixel-value to be set.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.31 NppStatus nppiSet_32fc_C2R (Npp32fc *aValue*[2], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Two channel 32-bit complex image set.

Parameters:

- aValue* The pixel-value to be set.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.32 NppStatus nppiSet_32fc_C3R (Npp32fc *aValue*[3], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 32-bit complex image set.

Parameters:

- aValue* The pixel-value to be set.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.33 NppStatus nppiSet_32fc_C4R (Npp32fc *aValue*[4], Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 32-bit complex image set.

Parameters:

aValue The pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.34 NppStatus nppiSet_32s_AC4MR (const Npp32s *aValues*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 4 channel 16-bit image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.
nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.35 NppStatus nppiSet_32s_AC4R (const Npp32s *aValues*[3], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.36 NppStatus nppiSet_32s_C1MR (Npp32s *nValue*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 32-bit image set.

Parameters:

nValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.37 NppStatus nppiSet_32s_C1R (Npp32s *nValue*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit image set.

Parameters:

nValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.38 NppStatus nppiSet_32s_C4CR (Npp32s *nValue*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit unsigned image set affecting only single channel.

For RGBA images, this method allows setting of a single of the four (RGBA) values without changing the contents of the other three channels. The channel is selected via the pDst pointer. The pointer needs to point to the actual first value to be set, e.g. in order to set the R-channel (first channel), one would pass pDst unmodified, since its value actually points to the r channel. If one wanted to modify the B channel (second channel), one would pass pDst + 2 to the function.

Parameters:

nValue The pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.39 NppStatus nppiSet_32s_C4MR (const Npp32s *aValues*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 4 channel 32-bit image set.

Parameters:

aValues New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.40 NppStatus nppiSet_32s_C4R (const Npp32s *aValues*[4], Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit image set.

Parameters:

aValues New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.41 NppStatus nppiSet_32sc_AC4R (Npp32sc *aValue*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit complex integer four-channel image set ignoring alpha.

Parameters:

aValue New pixel value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.42 NppStatus nppiSet_32sc_C1R (Npp32sc *aValue*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 32-bit complex integer image set.

Parameters:

aValue The pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.43 NppStatus nppiSet_32sc_C2R (Npp32sc *aValue*[2], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Two channel 32-bit complex integer image set.

Parameters:

aValue The pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.44 NppStatus nppiSet_32sc_C3R (Npp32sc *aValue*[3], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 32-bit complex integer image set.

Parameters:

aValue The pixel-value to be set.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.45 NppStatus nppiSet_32sc_C4R (Npp32sc *aValue*[4], Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 32-bit complex integer image set.

Parameters:

aValue The pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.46 NppStatus nppiSet_8s_AC4R (Npp8s *aValue*[3], Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

8-bit four-channel image set ignoring alpha channel.

Parameters:

aValue The pixel value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.47 NppStatus nppiSet_8s_C1R (Npp8s *nValue*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

8-bit image set.

Parameters:

nValue The pixel value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.48 NppStatus nppiSet_8s_C2R (Npp8s *aValue*[2], Npp8s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

8-bit two-channel image set.

Parameters:

- aValue* The pixel value to be set.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.49 NppStatus nppiSet_8s_C3R (Npp8s *aValue*[3], Npp8s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

8-bit three-channel image set.

Parameters:

- aValue* The pixel value to be set.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.50 NppStatus nppiSet_8s_C4R (Npp8s *aValue*[4], Npp8s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

8-bit four-channel image set.

Parameters:

- aValue* The pixel value to be set.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.51 NppStatus nppiSet_8u_AC4MR (const Npp8u *aValues*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u **pMask*, int *nMaskStep*)

Masked 4 channel 8-bit unsigned image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.52 NppStatus nppiSet_8u_AC4R (const Npp8u *aValues*[3], Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned image set method, not affecting Alpha channel.

For RGBA images, this method allows setting of the RGB values without changing the contents of the alpha-channel (fourth channel).

Parameters:

aValues Three-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.53 NppStatus nppiSet_8u_C1MR (Npp8u *nValue*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u **pMask*, int *nMaskStep*)

Masked 8-bit unsigned image set.

The 8-bit mask image affects setting of the respective pixels in the destination image. If the mask value is zero (0) the pixel is not set, if the mask is non-zero, the corresponding destination pixel is set to specified value.

Parameters:

nValue The pixel value to be set.

pDst Pointer Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.54 NppStatus nppiSet_8u_C1R (Npp8u *nValue*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

8-bit unsigned image set.

Parameters:

nValue The pixel value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.55 NppStatus nppiSet_8u_C4CR (Npp8u *nValue*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned image set affecting only single channel.

For RGBA images, this method allows setting of a single of the four (RGBA) values without changing the contents of the other three channels. The channel is selected via the pDst pointer. The pointer needs to point to the actual first value to be set, e.g. in order to set the R-channel (first channel), one would pass pDst unmodified, since its value actually points to the r channel. If one wanted to modify the B channel (second channel), one would pass pDst + 2 to the function.

Parameters:

nValue The pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.56 NppStatus nppiSet_8u_C4MR (const Npp8u *aValues*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked 4 channel 8-bit unsigned image set.

Parameters:

aValues Four-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the mask image. This is a single channel 8-bit unsigned int image.

nMaskStep Number of bytes between line starts of successive lines in the mask image.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.54.1.57 NppStatus nppiSet_8u_C4R (const Npp8u *aValues*[4], Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned image set.

Parameters:

aValues Four-channel array containing the pixel-value to be set.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55 Copy

Image-Memory Copy

Copy methods for images of various types.

In addition to routines for copying pixels of identical layout from one image to another, there are copy routines for select channels as well as packed-planar conversions:

- Select channel to multi-channel copy. E.g. given a three-channel source and destination image one may copy the second channel of the source to the third channel of the destination.
 - Single channel to multi-channel copy. E.g. given a single-channel source and a four-channel destination, one may copy the contents of the single-channel source to the second channel of the destination.
 - Select channel to single-channel copy. E.g. given a three-channel source and a single-channel destination one may copy the third channel of the source to the destination.
 - Multi-channel to planar copy. These copy operations split a multi-channel image into a set of single-channel images.
 - Planar image to multi-channel copy. These copy routines combine separate color-planes (single channel images) into a single multi-channel image.
 - **NppStatus nppiCopy_8s_C1R** (const **Npp8s** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **Nppi-Size** oSizeROI)
- 8-bit image copy.*
- **NppStatus nppiCopy_8s_C2R** (const **Npp8s** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **Nppi-Size** oSizeROI)
- Two-channel 8-bit image copy.*
- **NppStatus nppiCopy_8s_C3R** (const **Npp8s** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **Nppi-Size** oSizeROI)
- Three-channel 8-bit image copy.*
- **NppStatus nppiCopy_8s_C4R** (const **Npp8s** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **Nppi-Size** oSizeROI)
- Four-channel 8-bit image copy.*
- **NppStatus nppiCopy_8s_AC4R** (const **Npp8s** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **Nppi-Size** oSizeROI)
- Four-channel 8-bit image copy, ignoring alpha channel.*
- **NppStatus nppiCopy_8u_C1R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **Nppi-Size** oSizeROI)
- 8-bit unsigned image copy.*
- **NppStatus nppiCopy_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **Nppi-Size** oSizeROI)
- 4 channel 8-bit unsigned image copy.*

- `NppStatus nppiCopy_8u_AC4R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
4 channel 8-bit unsigned image copy, not affecting Alpha channel.
- `NppStatus nppiCopy_16u_C1R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI)`
16-bit unsigned image copy.
- `NppStatus nppiCopy_16u_C4R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI)`
4 channel 16-bit unsigned image copy.
- `NppStatus nppiCopy_16u_AC4R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI)`
4 channel 16-bit unsigned image copy, not affecting Alpha channel.
- `NppStatus nppiCopy_16s_C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI)`
16-bit image copy.
- `NppStatus nppiCopy_16s_C4R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI)`
4 channel 16-bit image copy.
- `NppStatus nppiCopy_16s_AC4R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI)`
4 channel 16-bit image copy, not affecting Alpha.
- `NppStatus nppiCopy_16sc_C1R (const Npp16sc *pSrc, int nSrcStep, Npp16sc *pDst, int nDstStep, NppiSize oSizeROI)`
16-bit complex image copy.
- `NppStatus nppiCopy_16sc_C2R (const Npp16sc *pSrc, int nSrcStep, Npp16sc *pDst, int nDstStep, NppiSize oSizeROI)`
Two-channel 16-bit complex image copy.
- `NppStatus nppiCopy_16sc_C3R (const Npp16sc *pSrc, int nSrcStep, Npp16sc *pDst, int nDstStep, NppiSize oSizeROI)`
Three-channel 16-bit complex image copy.
- `NppStatus nppiCopy_16sc_C4R (const Npp16sc *pSrc, int nSrcStep, Npp16sc *pDst, int nDstStep, NppiSize oSizeROI)`
Four-channel 16-bit complex image copy.
- `NppStatus nppiCopy_16sc_AC4R (const Npp16sc *pSrc, int nSrcStep, Npp16sc *pDst, int nDstStep, NppiSize oSizeROI)`
Four-channel 16-bit complex image copy, ignoring alpha.
- `NppStatus nppiCopy_32s_C1R (const Npp32s *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`
32-bit image copy.

- **NppStatus nppiCopy_32s_C4R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 32-bit image copy.
- **NppStatus nppiCopy_32s_AC4R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 32-bit image copy, not affecting Alpha.
- **NppStatus nppiCopy_32sc_C1R** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

32-bit complex image copy.
- **NppStatus nppiCopy_32sc_C2R** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Two-channel 32-bit complex image copy.
- **NppStatus nppiCopy_32sc_C3R** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three-channel 32-bit complex image copy.
- **NppStatus nppiCopy_32sc_C4R** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel 32-bit complex image copy.
- **NppStatus nppiCopy_32sc_AC4R** (const **Npp32sc** *pSrc, int nSrcStep, **Npp32sc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel 32-bit complex image copy, ignoring alpha.
- **NppStatus nppiCopy_32f_C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

32-bit floating point image copy.
- **NppStatus nppiCopy_32f_C4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 32-bit floating point image copy.
- **NppStatus nppiCopy_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

4 channel 32-bit floating point image copy, not affecting Alpha.
- **NppStatus nppiCopy_32fc_C1R** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

32-bit floating-point complex image copy.
- **NppStatus nppiCopy_32fc_C2R** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Two-channel 32-bit floating-point complex image copy.
- **NppStatus nppiCopy_32fc_C3R** (const **Npp32fc** *pSrc, int nSrcStep, **Npp32fc** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three-channel 32-bit floating-point complex image copy.

Three-channel 32-bit floating-point complex image copy.

- `NppStatus nppiCopy_32fc_C4R` (const `Npp32fc` *`pSrc`, int `nSrcStep`, `Npp32fc` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

Four-channel 32-bit floating-point complex image copy.

- `NppStatus nppiCopy_32fc_AC4R` (const `Npp32fc` *`pSrc`, int `nSrcStep`, `Npp32fc` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

Four-channel 32-bit floating-point complex image copy, ignoring alpha.

- `NppStatus nppiCopy_8u_C1MR` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation 8-bit unsigned image copy.

- `NppStatus nppiCopy_8u_C3MR` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation three channel 8-bit unsigned image copy.

- `NppStatus nppiCopy_8u_C4MR` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation four channel 8-bit unsigned image copy.

- `NppStatus nppiCopy_8u_AC4MR` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation four channel 8-bit unsigned image copy, ignoring alpha.

- `NppStatus nppiCopy_16u_C1MR` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation 16-bit unsigned image copy.

- `NppStatus nppiCopy_16u_C3MR` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation three channel 16-bit unsigned image copy.

- `NppStatus nppiCopy_16u_C4MR` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation four channel 16-bit unsigned image copy.

- `NppStatus nppiCopy_16u_AC4MR` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation four channel 16-bit unsigned image copy, ignoring alpha.

- `NppStatus nppiCopy_16s_C1MR` (const `Npp16s` *`pSrc`, int `nSrcStep`, `Npp16s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation 16-bit signed image copy.

- `NppStatus nppiCopy_16s_C3MR` (const `Npp16s` *`pSrc`, int `nSrcStep`, `Npp16s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, const `Npp8u` *`pMask`, int `nMaskStep`)

Masked Operation three channel 16-bit signed image copy.

- **NppStatus nppiCopy_16s_C4MR** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation four channel 16-bit signed image copy.

- **NppStatus nppiCopy_16s_AC4MR** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation four channel 16-bit signed image copy, ignoring alpha.

- **NppStatus nppiCopy_32s_C1MR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation 32-bit signed image copy.

- **NppStatus nppiCopy_32s_C3MR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation three channel 32-bit signed image copy.

- **NppStatus nppiCopy_32s_C4MR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation four channel 32-bit signed image copy.

- **NppStatus nppiCopy_32s_AC4MR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation four channel 32-bit signed image copy, ignoring alpha.

- **NppStatus nppiCopy_32f_C1MR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation 32-bit float image copy.

- **NppStatus nppiCopy_32f_C3MR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation three channel 32-bit float image copy.

- **NppStatus nppiCopy_32f_C4MR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation four channel 32-bit float image copy.

- **NppStatus nppiCopy_32f_AC4MR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** *pMask, int nMaskStep)

Masked Operation four channel 32-bit float image copy, ignoring alpha.

- **NppStatus nppiCopy_8u_C3CR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI)

Select-channel 8-bit unsigned image copy for three-channel images.

- **NppStatus nppiCopy_8u_C4CR** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI)

Select-channel 8-bit unsigned image copy for four-channel images.

- **NppStatus nppiCopy_16s_C3CR** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppSize** oSizeROI)

Select-channel 16-bit signed image copy for three-channel images.

- **NppStatus nppiCopy_16s_C4CR** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Select-channel 16-bit signed image copy for four-channel images.
- **NppStatus nppiCopy_16u_C3CR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Select-channel 16-bit unsigned image copy for three-channel images.
- **NppStatus nppiCopy_16u_C4CR** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Select-channel 16-bit unsigned image copy for four-channel images.
- **NppStatus nppiCopy_32s_C3CR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Select-channel 32-bit signed image copy for three-channel images.
- **NppStatus nppiCopy_32s_C4CR** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Select-channel 32-bit signed image copy for four-channel images.
- **NppStatus nppiCopy_32f_C3CR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)
Select-channel 32-bit float image copy for three-channel images.
- **NppStatus nppiCopy_32f_C4CR** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)
Select-channel 32-bit float image copy for four-channel images.
- **NppStatus nppiCopy_8u_C3C1R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three-channel to single-channel 8-bit unsigned image copy.
- **NppStatus nppiCopy_8u_C4C1R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four-channel to single-channel 8-bit unsigned image copy.
- **NppStatus nppiCopy_16s_C3C1R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three-channel to single-channel 16-bit signed image copy.
- **NppStatus nppiCopy_16s_C4C1R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four-channel to single-channel 16-bit signed image copy.
- **NppStatus nppiCopy_16u_C3C1R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Three-channel to single-channel 16-bit unsigned image copy.
- **NppStatus nppiCopy_16u_C4C1R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)
Four-channel to single-channel 16-bit unsigned image copy.

Four-channel to single-channel 16-bit unsigned image copy.

- **NppStatus nppiCopy_32s_C3C1R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three-channel to single-channel 32-bit signed image copy.

- **NppStatus nppiCopy_32s_C4C1R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel to single-channel 32-bit signed image copy.

- **NppStatus nppiCopy_32f_C3C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three-channel to single-channel 32-bit float image copy.

- **NppStatus nppiCopy_32f_C4C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel to single-channel 32-bit float image copy.

- **NppStatus nppiCopy_8u_C1C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single-channel to three-channel 8-bit unsigned image copy.

- **NppStatus nppiCopy_8u_C1C4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single-channel to four-channel 8-bit unsigned image copy.

- **NppStatus nppiCopy_16s_C1C3R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single-channel to three-channel 16-bit signed image copy.

- **NppStatus nppiCopy_16s_C1C4R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single-channel to four-channel 16-bit signed image copy.

- **NppStatus nppiCopy_16u_C1C3R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single-channel to three-channel 16-bit unsigned image copy.

- **NppStatus nppiCopy_16u_C1C4R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single-channel to four-channel 16-bit unsigned image copy.

- **NppStatus nppiCopy_32s_C1C3R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single-channel to three-channel 32-bit signed image copy.

- **NppStatus nppiCopy_32s_C1C4R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single-channel to four-channel 32-bit signed image copy.

- `NppStatus nppiCopy_32f_C1C3R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`
Single-channel to three-channel 32-bit float image copy.
- `NppStatus nppiCopy_32f_C1C4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`
Single-channel to four-channel 32-bit float image copy.
- `NppStatus nppiCopy_8u_C3P3R (const Npp8u *pSrc, int nSrcStep, Npp8u *const aDst[3], int nDstStep, NppiSize oSizeROI)`
Three-channel 8-bit unsigned packed to planar image copy.
- `NppStatus nppiCopy_8u_C4P4R (const Npp8u *pSrc, int nSrcStep, Npp8u *const aDst[4], int nDstStep, NppiSize oSizeROI)`
Four-channel 8-bit unsigned packed to planar image copy.
- `NppStatus nppiCopy_16s_C3P3R (const Npp16s *pSrc, int nSrcStep, Npp16s *const aDst[3], int nDstStep, NppiSize oSizeROI)`
Three-channel 16-bit signed packed to planar image copy.
- `NppStatus nppiCopy_16s_C4P4R (const Npp16s *pSrc, int nSrcStep, Npp16s *const aDst[4], int nDstStep, NppiSize oSizeROI)`
Four-channel 16-bit signed packed to planar image copy.
- `NppStatus nppiCopy_16u_C3P3R (const Npp16u *pSrc, int nSrcStep, Npp16u *const aDst[3], int nDstStep, NppiSize oSizeROI)`
Three-channel 16-bit unsigned packed to planar image copy.
- `NppStatus nppiCopy_16u_C4P4R (const Npp16u *pSrc, int nSrcStep, Npp16u *const aDst[4], int nDstStep, NppiSize oSizeROI)`
Four-channel 16-bit unsigned packed to planar image copy.
- `NppStatus nppiCopy_32s_C3P3R (const Npp32s *pSrc, int nSrcStep, Npp32s *const aDst[3], int nDstStep, NppiSize oSizeROI)`
Three-channel 32-bit signed packed to planar image copy.
- `NppStatus nppiCopy_32s_C4P4R (const Npp32s *pSrc, int nSrcStep, Npp32s *const aDst[4], int nDstStep, NppiSize oSizeROI)`
Four-channel 32-bit signed packed to planar image copy.
- `NppStatus nppiCopy_32f_C3P3R (const Npp32f *pSrc, int nSrcStep, Npp32f *const aDst[3], int nDstStep, NppiSize oSizeROI)`
Three-channel 32-bit float packed to planar image copy.
- `NppStatus nppiCopy_32f_C4P4R (const Npp32f *pSrc, int nSrcStep, Npp32f *const aDst[4], int nDstStep, NppiSize oSizeROI)`
Four-channel 32-bit float packed to planar image copy.
- `NppStatus nppiCopy_8u_P3C3R (const Npp8u *const aSrc[3], int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)`
Three-channel 8-bit unsigned planar to packed image copy.

- **NppStatus nppiCopy_8u_P4C4R** (const **Npp8u** *const aSrc[4], int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel 8-bit unsigned planar to packed image copy.
- **NppStatus nppiCopy_16u_P3C3R** (const **Npp16u** *const aSrc[3], int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three-channel 16-bit unsigned planar to packed image copy.
- **NppStatus nppiCopy_16u_P4C4R** (const **Npp16u** *const aSrc[4], int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel 16-bit unsigned planar to packed image copy.
- **NppStatus nppiCopy_16s_P3C3R** (const **Npp16s** *const aSrc[3], int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three-channel 16-bit signed planar to packed image copy.
- **NppStatus nppiCopy_16s_P4C4R** (const **Npp16s** *const aSrc[4], int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel 16-bit signed planar to packed image copy.
- **NppStatus nppiCopy_32s_P3C3R** (const **Npp32s** *const aSrc[3], int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three-channel 32-bit signed planar to packed image copy.
- **NppStatus nppiCopy_32s_P4C4R** (const **Npp32s** *const aSrc[4], int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel 32-bit signed planar to packed image copy.
- **NppStatus nppiCopy_32f_P3C3R** (const **Npp32f** *const aSrc[3], int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three-channel 32-bit float planar to packed image copy.
- **NppStatus nppiCopy_32f_P4C4R** (const **Npp32f** *const aSrc[4], int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four-channel 32-bit float planar to packed image copy.

7.55.1 Function Documentation

7.55.1.1 NppStatus nppiCopy_16s_AC4MR (const **Npp16s** **pSrc*, int *nSrcStep*, **Npp16s** **pDst*, int *nDstStep*, **NppiSize** *oSizeROI*, const **Npp8u** **pMask*, int *nMaskStep*)

Masked Operation four channel 16-bit signed image copy, ignoring alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.55.1.2 NppStatus nppiCopy_16s_AC4R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit image copy, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.55.1.3 NppStatus nppiCopy_16s_C1C3R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single-channel to three-channel 16-bit signed image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.55.1.4 NppStatus nppiCopy_16s_C1C4R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single-channel to four-channel 16-bit signed image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.5 NppStatus nppiCopy_16s_C1MR (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation 16-bit signed image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.6 NppStatus nppiCopy_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.7 NppStatus nppiCopy_16s_C3C1R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel to single-channel 16-bit signed image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.8 NppStatus nppiCopy_16s_C3CR (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Select-channel 16-bit signed image copy for three-channel images.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Select-Channel Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.9 NppStatus nppiCopy_16s_C3MR (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation three channel 16-bit signed image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.10 NppStatus nppiCopy_16s_C3P3R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s *const *aDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 16-bit signed packed to planar image copy.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- aDst* Planar Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.11 NppStatus nppiCopy_16s_C4C1R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel to single-channel 16-bit signed image copy.

Parameters:

- pSrc* Select-Channel Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.12 NppStatus nppiCopy_16s_C4CR (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Select-channel 16-bit signed image copy for four-channel images.

Parameters:

- pSrc* Select-Channel Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Select-Channel Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.13 NppStatus nppiCopy_16s_C4MR (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u * pMask, int nMaskStep)

Masked Operation four channel 16-bit signed image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.14 NppStatus nppiCopy_16s_C4P4R (const Npp16s * pSrc, int nSrcStep, Npp16s *const aDst[4], int nDstStep, NppiSize oSizeROI)

Four-channel 16-bit signed packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.15 NppStatus nppiCopy_16s_C4R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI)

4 channel 16-bit image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.16 NppStatus nppiCopy_16s_P3C3R (const Npp16s *const *aSrc*[3], int *nSrcStep*, Npp16s *
pDst, int *nDstStep*, NppiSize *oSizeROI*)**

Three-channel 16-bit signed planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.17 NppStatus nppiCopy_16s_P4C4R (const Npp16s *const *aSrc*[4], int *nSrcStep*, Npp16s *
pDst, int *nDstStep*, NppiSize *oSizeROI*)**

Four-channel 16-bit signed planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.18 NppStatus nppiCopy_16sc_AC4R (const Npp16sc **pSrc*, int *nSrcStep*, Npp16sc **pDst*,
int *nDstStep*, NppiSize *oSizeROI*)**

Four-channel 16-bit complex image copy, ignoring alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.19 NppStatus nppiCopy_16sc_C1R (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.20 NppStatus nppiCopy_16sc_C2R (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Two-channel 16-bit complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.21 NppStatus nppiCopy_16sc_C3R (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 16-bit complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.22 NppStatus nppiCopy_16sc_C4R (const Npp16sc * *pSrc*, int *nSrcStep*, Npp16sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 16-bit complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.23 NppStatus nppiCopy_16u_AC4MR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation four channel 16-bit unsigned image copy, ignoring alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.24 NppStatus nppiCopy_16u_AC4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit unsigned image copy, not affecting Alpha channel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.25 NppStatus nppiCopy_16u_C1C3R (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single-channel to three-channel 16-bit unsigned image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.26 NppStatus nppiCopy_16u_C1C4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single-channel to four-channel 16-bit unsigned image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.27 NppStatus nppiCopy_16u_C1MR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation 16-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.28 NppStatus nppiCopy_16u_C1R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

16-bit unsigned image copy.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.29 NppStatus nppiCopy_16u_C3C1R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel to single-channel 16-bit unsigned image copy.

Parameters:

- pSrc* Select-Channel Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.30 NppStatus nppiCopy_16u_C3CR (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Select-channel 16-bit unsigned image copy for three-channel images.

Parameters:

- pSrc* Select-Channel Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Select-Channel Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.31 NppStatus nppiCopy_16u_C3MR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation three channel 16-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.32 NppStatus nppiCopy_16u_C3P3R (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u *const** *aDst[3]*, int *nDstStep*, NppiSize *oSizeROI*)**

Three-channel 16-bit unsigned packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.33 NppStatus nppiCopy_16u_C4C1R (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel to single-channel 16-bit unsigned image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.34 NppStatus nppiCopy_16u_C4CR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Select-channel 16-bit unsigned image copy for four-channel images.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Select-Channel Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.35 NppStatus nppiCopy_16u_C4MR (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation four channel 16-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.36 NppStatus nppiCopy_16u_C4P4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u *const** *aDst[4]*, int *nDstStep*, NppiSize *oSizeROI*)**

Four-channel 16-bit unsigned packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.37 NppStatus nppiCopy_16u_C4R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.38 NppStatus nppiCopy_16u_P3C3R (const Npp16u *const *aSrc*[3], int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 16-bit unsigned planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.39 NppStatus nppiCopy_16u_P4C4R (const Npp16u *const *aSrc*[4], int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 16-bit unsigned planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.40 NppStatus nppiCopy_32f_AC4MR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation four channel 32-bit float image copy, ignoring alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.41 NppStatus nppiCopy_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit floating point image copy, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.42 NppStatus nppiCopy_32f_C1C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single-channel to three-channel 32-bit float image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.43 NppStatus nppiCopy_32f_C1C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single-channel to four-channel 32-bit float image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.44 NppStatus nppiCopy_32f_C1MR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation 32-bit float image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.45 NppStatus nppiCopy_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit floating point image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.46 NppStatus nppiCopy_32f_C3C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel to single-channel 32-bit float image copy.

Parameters:

- pSrc* Select-Channel Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.47 NppStatus nppiCopy_32f_C3CR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Select-channel 32-bit float image copy for three-channel images.

Parameters:

- pSrc* Select-Channel Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Select-Channel Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.48 NppStatus nppiCopy_32f_C3MR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation three channel 32-bit float image copy.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- pMask* Mask-Image Pointer.
- nMaskStep* Mask-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.49 NppStatus nppiCopy_32f_C3P3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f *const *aDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 32-bit float packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.50 NppStatus nppiCopy_32f_C4C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel to single-channel 32-bit float image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.51 NppStatus nppiCopy_32f_C4CR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Select-channel 32-bit float image copy for four-channel images.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Select-Channel Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.52 NppStatus nppiCopy_32f_C4MR (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation four channel 32-bit float image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.53 NppStatus nppiCopy_32f_C4P4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f *const *aDst[4]*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 32-bit float packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.54 NppStatus nppiCopy_32f_C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit floating point image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.55 NppStatus nppiCopy_32f_P3C3R (const Npp32f *const *aSrc*[3], int *nSrcStep*, Npp32f *
pDst, int *nDstStep*, NppiSize *oSizeROI*)**

Three-channel 32-bit float planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.56 NppStatus nppiCopy_32f_P4C4R (const Npp32f *const *aSrc*[4], int *nSrcStep*, Npp32f *
pDst, int *nDstStep*, NppiSize *oSizeROI*)**

Four-channel 32-bit float planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.57 NppStatus nppiCopy_32fc_AC4R (const Npp32fc **pSrc*, int *nSrcStep*, Npp32fc **pDst*,
int *nDstStep*, NppiSize *oSizeROI*)**

Four-channel 32-bit floating-point complex image copy, ignoring alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.58 NppStatus nppiCopy_32fc_C1R (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit floating-point complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.59 NppStatus nppiCopy_32fc_C2R (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Two-channel 32-bit floating-point complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.60 NppStatus nppiCopy_32fc_C3R (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32fc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 32-bit floating-point complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.61 NppStatus nppiCopy_32fc_C4R (const Npp32fc * pSrc, int nSrcStep, Npp32fc * pDst, int nDstStep, NppiSize oSizeROI)

Four-channel 32-bit floating-point complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.62 NppStatus nppiCopy_32s_AC4MR (const Npp32s * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u * pMask, int nMaskStep)

Masked Operation four channel 32-bit signed image copy, ignoring alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.63 NppStatus nppiCopy_32s_AC4R (const Npp32s * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

4 channel 32-bit image copy, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.64 NppStatus nppiCopy_32s_C1C3R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single-channel to three-channel 32-bit signed image copy.

Parameters:

- pSrc* Select-Channel Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.65 NppStatus nppiCopy_32s_C1C4R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single-channel to four-channel 32-bit signed image copy.

Parameters:

- pSrc* Select-Channel Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.66 NppStatus nppiCopy_32s_C1MR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation 32-bit signed image copy.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- pMask* Mask-Image Pointer.
- nMaskStep* Mask-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.67 NppStatus nppiCopy_32s_C1R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.68 NppStatus nppiCopy_32s_C3C1R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel to single-channel 32-bit signed image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.69 NppStatus nppiCopy_32s_C3CR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Select-channel 32-bit signed image copy for three-channel images.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Select-Channel Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.70 NppStatus nppiCopy_32s_C3MR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation three channel 32-bit signed image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.71 NppStatus nppiCopy_32s_C3P3R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s *
const *aDst*[3], int *nDstStep*, NppiSize *oSizeROI*)**

Three-channel 32-bit signed packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.72 NppStatus nppiCopy_32s_C4C1R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*,
int *nDstStep*, NppiSize *oSizeROI*)**

Four-channel to single-channel 32-bit signed image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.73 NppStatus nppiCopy_32s_C4CR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Select-channel 32-bit signed image copy for four-channel images.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Select-Channel Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.74 NppStatus nppiCopy_32s_C4MR (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation four channel 32-bit signed image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.55.1.75 NppStatus nppiCopy_32s_C4P4R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s *
const *aDst[4]*, int *nDstStep*, NppiSize *oSizeROI*)**

Four-channel 32-bit signed packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.76 NppStatus nppiCopy_32s_C4R (const Npp32s **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.77 NppStatus nppiCopy_32s_P3C3R (const Npp32s *const *aSrc*[3], int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 32-bit signed planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.78 NppStatus nppiCopy_32s_P4C4R (const Npp32s *const *aSrc*[4], int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 32-bit signed planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.79 NppStatus nppiCopy_32sc_AC4R (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 32-bit complex image copy, ignoring alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.80 NppStatus nppiCopy_32sc_C1R (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.81 NppStatus nppiCopy_32sc_C2R (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Two-channel 32-bit complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.82 NppStatus nppiCopy_32sc_C3R (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 32-bit complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.83 NppStatus nppiCopy_32sc_C4R (const Npp32sc * *pSrc*, int *nSrcStep*, Npp32sc * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 32-bit complex image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.84 NppStatus nppiCopy_8s_AC4R (const Npp8s * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 8-bit image copy, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.85 NppStatus nppiCopy_8s_C1R (const Npp8s * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

8-bit image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.86 NppStatus nppiCopy_8s_C2R (const Npp8s * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Two-channel 8-bit image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.87 NppStatus nppiCopy_8s_C3R (const Npp8s * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 8-bit image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.88 NppStatus nppiCopy_8s_C4R (const Npp8s * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 8-bit image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.89 NppStatus nppiCopy_8u_AC4MR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation four channel 8-bit unsigned image copy, ignoring alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.90 NppStatus nppiCopy_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned image copy, not affecting Alpha channel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.91 NppStatus nppiCopy_8u_C1C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Single-channel to three-channel 8-bit unsigned image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.92 NppStatus nppiCopy_8u_C1C4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Single-channel to four-channel 8-bit unsigned image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.93 NppStatus nppiCopy_8u_C1MR (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u * pMask, int nMaskStep)

Masked Operation 8-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.94 NppStatus nppiCopy_8u_C1R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

8-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.95 NppStatus nppiCopy_8u_C3C1R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three-channel to single-channel 8-bit unsigned image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.96 NppStatus nppiCopy_8u_C3CR (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Select-channel 8-bit unsigned image copy for three-channel images.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Select-Channel Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.97 NppStatus nppiCopy_8u_C3MR (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppSize *oSizeROI*, const Npp8u * *pMask*, int *nMaskStep*)

Masked Operation three channel 8-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.98 NppStatus nppiCopy_8u_C3P3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u *const *aDst*[3], int *nDstStep*, NppSize *oSizeROI*)

Three-channel 8-bit unsigned packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.99 NppStatus nppiCopy_8u_C4C1R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppSize *oSizeROI*)

Four-channel to single-channel 8-bit unsigned image copy.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.100 NppStatus nppiCopy_8u_C4CR (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Select-channel 8-bit unsigned image copy for four-channel images.

Parameters:

pSrc Select-Channel Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Select-Channel Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.101 NppStatus nppiCopy_8u_C4MR (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u * pMask, int nMaskStep)

Masked Operation four channel 8-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.102 NppStatus nppiCopy_8u_C4P4R (const Npp8u * pSrc, int nSrcStep, Npp8u *const aDst[4], int nDstStep, NppiSize oSizeROI)

Four-channel 8-bit unsigned packed to planar image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
aDst Planar Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.103 NppStatus nppiCopy_8u_C4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned image copy.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.104 NppStatus nppiCopy_8u_P3C3R (const Npp8u *const *aSrc*[3], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three-channel 8-bit unsigned planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.55.1.105 NppStatus nppiCopy_8u_P4C4R (const Npp8u *const *aSrc*[4], int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four-channel 8-bit unsigned planar to packed image copy.

Parameters:

aSrc Planar Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56 Convert

Bit-Depth Conversion

Convert bit-depth up and down.

The integer conversion methods do not involve any scaling. Conversions that reduce bit-depth saturate values exceeding the reduced range to the range's maximum/minimum value. When converting from floating-point values to integer values, a rounding mode can be specified. After rounding to integer values the values get saturated to the destination data type's range.

- [NppStatus nppiConvert_8u16u_C1R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp16u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Single channel 8-bit unsigned to 16-bit unsigned conversion.
- [NppStatus nppiConvert_8u16u_C3R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp16u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three channel 8-bit unsigned to 16-bit unsigned conversion.
- [NppStatus nppiConvert_8u16u_C4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp16u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four channel 8-bit unsigned to 16-bit unsigned conversion.
- [NppStatus nppiConvert_8u16u_AC4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp16u](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four channel 8-bit unsigned to 16-bit unsigned conversion, not affecting Alpha.
- [NppStatus nppiConvert_8u16s_C1R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp16s](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Single channel 8-bit unsigned to 16-bit signed conversion.
- [NppStatus nppiConvert_8u16s_C3R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp16s](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three channel 8-bit unsigned to 16-bit signed conversion.
- [NppStatus nppiConvert_8u16s_C4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp16s](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four channel 8-bit unsigned to 16-bit signed conversion.
- [NppStatus nppiConvert_8u16s_AC4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp16s](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Four channel 8-bit unsigned to 16-bit signed conversion, not affecting Alpha.
- [NppStatus nppiConvert_8u32s_C1R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp32s](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Single channel 8-bit unsigned to 32-bit signed conversion.
- [NppStatus nppiConvert_8u32s_C3R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [Npp32s](#) *pDst, int nDstStep, [NppiSize](#) oSizeROI)

Three channel 8-bit unsigned to 32-bit signed conversion.

- `NppStatus nppiConvert_8u32s_C4R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four channel 8-bit unsigned to 32-bit signed conversion.

- `NppStatus nppiConvert_8u32s_AC4R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four channel 8-bit unsigned to 32-bit signed conversion, not affecting Alpha.

- `NppStatus nppiConvert_8u32f_C1R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp32f *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Single channel 8-bit unsigned to 32-bit floating-point conversion.

- `NppStatus nppiConvert_8u32f_C3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp32f *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Three channel 8-bit unsigned to 32-bit floating-point conversion.

- `NppStatus nppiConvert_8u32f_C4R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp32f *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four channel 8-bit unsigned to 32-bit floating-point conversion.

- `NppStatus nppiConvert_8u32f_AC4R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp32f *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four channel 8-bit unsigned to 32-bit floating-point conversion, not affecting Alpha.

- `NppStatus nppiConvert_8s32s_C1R` (const `Npp8s *pSrc`, int `nSrcStep`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Single channel 8-bit signed to 32-bit signed conversion.

- `NppStatus nppiConvert_8s32s_C3R` (const `Npp8s *pSrc`, int `nSrcStep`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Three channel 8-bit signed to 32-bit signed conversion.

- `NppStatus nppiConvert_8s32s_C4R` (const `Npp8s *pSrc`, int `nSrcStep`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four channel 8-bit signed to 32-bit signed conversion.

- `NppStatus nppiConvert_8s32s_AC4R` (const `Npp8s *pSrc`, int `nSrcStep`, `Npp32s *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four channel 8-bit signed to 32-bit signed conversion, not affecting Alpha.

- `NppStatus nppiConvert_8s32f_C1R` (const `Npp8s *pSrc`, int `nSrcStep`, `Npp32f *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Single channel 8-bit signed to 32-bit floating-point conversion.

- `NppStatus nppiConvert_8s32f_C3R` (const `Npp8s *pSrc`, int `nSrcStep`, `Npp32f *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Three channel 8-bit signed to 32-bit floating-point conversion.

- `NppStatus nppiConvert_8s32f_C4R` (const `Npp8s *pSrc`, int `nSrcStep`, `Npp32f *pDst`, int `nDstStep`, `NppiSize oSizeROI`)

Four channel 8-bit signed to 32-bit floating-point conversion.

- `NppStatus nppiConvert_8s32f_AC4R (const Npp8s *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`

Four channel 8-bit signed to 32-bit floating-point conversion, not affecting Alpha.
- `NppStatus nppiConvert_16u32s_C1R (const Npp16u *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Single channel 16-bit unsigned to 32-bit signed conversion.
- `NppStatus nppiConvert_16u32s_C3R (const Npp16u *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Three channel 16-bit unsigned to 32-bit signed conversion.
- `NppStatus nppiConvert_16u32s_C4R (const Npp16u *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Four channel 16-bit unsigned to 32-bit signed conversion.
- `NppStatus nppiConvert_16u32s_AC4R (const Npp16u *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Four channel 16-bit unsigned to 32-bit signed conversion, not affecting Alpha.
- `NppStatus nppiConvert_16u32f_C1R (const Npp16u *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`

Single channel 16-bit unsigned to 32-bit floating-point conversion.
- `NppStatus nppiConvert_16u32f_C3R (const Npp16u *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`

Three channel 16-bit unsigned to 32-bit floating-point conversion.
- `NppStatus nppiConvert_16u32f_C4R (const Npp16u *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`

Four channel 16-bit unsigned to 32-bit floating-point conversion.
- `NppStatus nppiConvert_16u32f_AC4R (const Npp16u *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)`

Four channel 16-bit unsigned to 32-bit floating-point conversion, not affecting Alpha.
- `NppStatus nppiConvert_16s32s_C1R (const Npp16s *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Single channel 16-bit signed to 32-bit signed conversion.
- `NppStatus nppiConvert_16s32s_C3R (const Npp16s *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Three channel 16-bit signed to 32-bit signed conversion.
- `NppStatus nppiConvert_16s32s_C4R (const Npp16s *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Four channel 16-bit signed to 32-bit signed conversion.
- `NppStatus nppiConvert_16s32s_AC4R (const Npp16s *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI)`

Four channel 16-bit signed to 32-bit signed conversion, not affecting Alpha.

- **NppStatus nppiConvert_16s32f_C1R** (const **Npp16s** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 16-bit signed to 32-bit floating-point conversion.

- **NppStatus nppiConvert_16s32f_C3R** (const **Npp16s** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Three channel 16-bit signed to 32-bit floating-point conversion.

- **NppStatus nppiConvert_16s32f_C4R** (const **Npp16s** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four channel 16-bit signed to 32-bit floating-point conversion.

- **NppStatus nppiConvert_16s32f_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI)

Four channel 16-bit signed to 32-bit floating-point conversion, not affecting Alpha.

- **NppStatus nppiConvert_8s8u_C1Rs** (const **Npp8s** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 8-bit signed to 8-bit unsigned conversion with saturation.

- **NppStatus nppiConvert_8s16u_C1Rs** (const **Npp8s** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 8-bit signed to 16-bit unsigned conversion with saturation.

- **NppStatus nppiConvert_8s16s_C1R** (const **Npp8s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 8-bit signed to 16-bit signed conversion.

- **NppStatus nppiConvert_8s32u_C1Rs** (const **Npp8s** *pSrc, int nSrcStep, **Npp32u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 8-bit signed to 32-bit unsigned conversion with saturation.

- **NppStatus nppiConvert_16s16u_C1Rs** (const **Npp16s** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 16-bit signed to 16-bit unsigned conversion with saturation.

- **NppStatus nppiConvert_16s32u_C1Rs** (const **Npp16s** *pSrc, int nSrcStep, **Npp32u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 16-bit signed to 32-bit unsigned conversion with saturation.

- **NppStatus nppiConvert_16u32u_C1R** (const **Npp16u** *pSrc, int nSrcStep, **Npp32u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 16-bit unsigned to 32-bit unsigned conversion.

- **NppStatus nppiConvert_32s32u_C1Rs** (const **Npp32s** *pSrc, int nSrcStep, **Npp32u** *pDst, int nDstStep, **NppiSize** oSizeROI)

Single channel 32-bit signed to 32-bit unsigned conversion with saturation.

- **NppStatus nppiConvert_32s32f_C1R** (const Npp32s *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)
Single channel 32-bit signed to 32-bit floating-point conversion.
- **NppStatus nppiConvert_32u32f_C1R** (const Npp32u *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)
Single channel 32-bit unsigned to 32-bit floating-point conversion.
- **NppStatus nppiConvert_16u8u_C1R** (const Npp16u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Single channel 16-bit unsigned to 8-bit unsigned conversion.
- **NppStatus nppiConvert_16u8u_C3R** (const Npp16u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Three channel 16-bit unsigned to 8-bit unsigned conversion.
- **NppStatus nppiConvert_16u8u_C4R** (const Npp16u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Four channel 16-bit unsigned to 8-bit unsigned conversion.
- **NppStatus nppiConvert_16u8u_AC4R** (const Npp16u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Four channel 16-bit unsigned to 8-bit unsigned conversion, not affecting Alpha.
- **NppStatus nppiConvert_16s8u_C1R** (const Npp16s *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Single channel 16-bit signed to 8-bit unsigned conversion.
- **NppStatus nppiConvert_16s8u_C3R** (const Npp16s *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Three channel 16-bit signed to 8-bit unsigned conversion.
- **NppStatus nppiConvert_16s8u_C4R** (const Npp16s *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Four channel 16-bit signed to 8-bit unsigned conversion.
- **NppStatus nppiConvert_16s8u_AC4R** (const Npp16s *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Four channel 16-bit signed to 8-bit unsigned conversion, not affecting Alpha.
- **NppStatus nppiConvert_32s8u_C1R** (const Npp32s *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Single channel 32-bit signed to 8-bit unsigned conversion.
- **NppStatus nppiConvert_32s8u_C3R** (const Npp32s *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Three channel 32-bit signed to 8-bit unsigned conversion.
- **NppStatus nppiConvert_32s8u_C4R** (const Npp32s *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI)
Four channel 32-bit signed to 8-bit unsigned conversion.

- `NppStatus nppiConvert_32s8u_AC4R` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

Four channel 32-bit signed to 8-bit unsigned conversion, not affecting Alpha.

- `NppStatus nppiConvert_32s8s_C1R` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

Single channel 32-bit signed to 8-bit signed conversion.

- `NppStatus nppiConvert_32s8s_C3R` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

Three channel 32-bit signed to 8-bit signed conversion.

- `NppStatus nppiConvert_32s8s_C4R` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

Four channel 32-bit signed to 8-bit signed conversion.

- `NppStatus nppiConvert_32s8s_AC4R` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`)

Four channel 32-bit signed to 8-bit signed conversion, not affecting Alpha.

- `NppStatus nppiConvert_8u8s_C1RSfs` (const `Npp8u` *`pSrc`, int `nSrcStep`, `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_16u8s_C1RSfs` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_16s8s_C1RSfs` (const `Npp16s` *`pSrc`, int `nSrcStep`, `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_16u16s_C1RSfs` (const `Npp16u` *`pSrc`, int `nSrcStep`, `Npp16s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_32u8u_C1RSfs` (const `Npp32u` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_32u8s_C1RSfs` (const `Npp32u` *`pSrc`, int `nSrcStep`, `Npp8s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_32u16u_C1RSfs` (const `Npp32u` *`pSrc`, int `nSrcStep`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_32u16s_C1RSfs` (const `Npp32u` *`pSrc`, int `nSrcStep`, `Npp16s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_32u32s_C1RSfs` (const `Npp32u` *`pSrc`, int `nSrcStep`, `Npp32s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_32s16u_C1RSfs` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp16u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_32s16s_C1RSfs` (const `Npp32s` *`pSrc`, int `nSrcStep`, `Npp16s` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`, int `nScaleFactor`)

- `NppStatus nppiConvert_32f8u_C1R` (const `Npp32f` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`)

Single channel 32-bit floating point to 8-bit unsigned conversion.

- `NppStatus nppiConvert_32f8u_C3R` (const `Npp32f` *`pSrc`, int `nSrcStep`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppRoundMode` `eRoundMode`)

Three channel 32-bit floating point to 8-bit unsigned conversion.

- **NppStatus nppiConvert_32f8u_C4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Four channel 32-bit floating point to 8-bit unsigned conversion.

- **NppStatus nppiConvert_32f8u_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Four channel 32-bit floating point to 8-bit unsigned conversion, not affecting Alpha.

- **NppStatus nppiConvert_32f8s_C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Single channel 32-bit floating point to 8-bit signed conversion.

- **NppStatus nppiConvert_32f8s_C3R** (const **Npp32f** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Three channel 32-bit floating point to 8-bit signed conversion.

- **NppStatus nppiConvert_32f8s_C4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Four channel 32-bit floating point to 8-bit signed conversion.

- **NppStatus nppiConvert_32f8s_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp8s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Four channel 32-bit floating point to 8-bit signed conversion, not affecting Alpha.

- **NppStatus nppiConvert_32f16u_C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Single channel 32-bit floating point to 16-bit unsigned conversion.

- **NppStatus nppiConvert_32f16u_C3R** (const **Npp32f** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Three channel 32-bit floating point to 16-bit unsigned conversion.

- **NppStatus nppiConvert_32f16u_C4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Four channel 32-bit floating point to 16-bit unsigned conversion.

- **NppStatus nppiConvert_32f16u_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Four channel 32-bit floating point to 16-bit unsigned conversion, not affecting Alpha.

- **NppStatus nppiConvert_32f16s_C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Single channel 32-bit floating point to 16-bit signed conversion.

- **NppStatus nppiConvert_32f16s_C3R** (const **Npp32f** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Three channel 32-bit floating point to 16-bit signed conversion.

- **NppStatus nppiConvert_32f16s_C4R** (const **Npp32f** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, **NppRoundMode** eRoundMode)

Four channel 32-bit floating point to 16-bit signed conversion.

- `NppStatus nppiConvert_32f16s_AC4R (const Npp32f *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode)`

Four channel 32-bit floating point to 16-bit signed conversion.

- `NppStatus nppiConvert_32f8u_C1RSfs (const Npp32f *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`

Single channel 32-bit floating point to 8-bit unsigned conversion.

- `NppStatus nppiConvert_32f8s_C1RSfs (const Npp32f *pSrc, int nSrcStep, Npp8s *pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`

Single channel 32-bit floating point to 8-bit signed conversion.

- `NppStatus nppiConvert_32f16u_C1RSfs (const Npp32f *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`

Single channel 32-bit floating point to 16-bit unsigned conversion.

- `NppStatus nppiConvert_32f16s_C1RSfs (const Npp32f *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`

Single channel 32-bit floating point to 16-bit signed conversion.

- `NppStatus nppiConvert_32f32u_C1RSfs (const Npp32f *pSrc, int nSrcStep, Npp32u *pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`

Single channel 32-bit floating point to 32-bit unsigned conversion.

- `NppStatus nppiConvert_32f32s_C1RSfs (const Npp32f *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`

Single channel 32-bit floating point to 32-bit signed conversion.

7.56.1 Function Documentation

7.56.1.1 `NppStatus nppiConvert_16s16u_C1Rs (const Npp16s * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)`

Single channel 16-bit signed to 16-bit unsigned conversion with saturation.

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.2 NppStatus nppiConvert_16s32f_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 16-bit signed to 32-bit floating-point conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.3 NppStatus nppiConvert_16s32f_C1R (const Npp16s * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 16-bit signed to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.4 NppStatus nppiConvert_16s32f_C3R (const Npp16s * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 16-bit signed to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.5 NppStatus nppiConvert_16s32f_C4R (const Npp16s **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 16-bit signed to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.6 NppStatus nppiConvert_16s32s_AC4R (const Npp16s **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 16-bit signed to 32-bit signed conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.7 NppStatus nppiConvert_16s32s_C1R (const Npp16s **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 16-bit signed to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.8 NppStatus nppiConvert_16s32s_C3R (const Npp16s **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppSize *oSizeROI*)

Three channel 16-bit signed to 32-bit signed conversion.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.9 NppStatus nppiConvert_16s32s_C4R (const Npp16s **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppSize *oSizeROI*)

Four channel 16-bit signed to 32-bit signed conversion.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.10 NppStatus nppiConvert_16s32u_C1Rs (const Npp16s **pSrc*, int *nSrcStep*, Npp32u **pDst*, int *nDstStep*, NppSize *oSizeROI*)

Single channel 16-bit signed to 32-bit unsigned conversion with saturation.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.11 NppStatus nppiConvert_16s8s_C1RSfs (const Npp16s * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)

7.56.1.12 NppStatus nppiConvert_16s8u_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 16-bit signed to 8-bit unsigned conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.13 NppStatus nppiConvert_16s8u_C1R (const Npp16s * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 16-bit signed to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.14 NppStatus nppiConvert_16s8u_C3R (const Npp16s * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 16-bit signed to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.15 NppStatus nppiConvert_16s8u_C4R (const Npp16s * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four channel 16-bit signed to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.16 NppStatus nppiConvert_16u16s_C1RSfs (const Npp16u * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)

7.56.1.17 NppStatus nppiConvert_16u32f_AC4R (const Npp16u * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four channel 16-bit unsigned to 32-bit floating-point conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.18 NppStatus nppiConvert_16u32f_C1R (const Npp16u * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Single channel 16-bit unsigned to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.19 NppStatus nppiConvert_16u32f_C3R (const Npp16u * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 16-bit unsigned to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.20 NppStatus nppiConvert_16u32f_C4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 16-bit unsigned to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.21 NppStatus nppiConvert_16u32s_AC4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 16-bit unsigned to 32-bit signed conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.22 NppStatus nppiConvert_16u32s_C1R (const Npp16u * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 16-bit unsigned to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.23 NppStatus nppiConvert_16u32s_C3R (const Npp16u * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 16-bit unsigned to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.24 NppStatus nppiConvert_16u32s_C4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 16-bit unsigned to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.25 NppStatus nppiConvert_16u32u_C1R (const Npp16u * *pSrc*, int *nSrcStep*, Npp32u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 16-bit unsigned to 32-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.26 NppStatus nppiConvert_16u8s_C1RSfs (const Npp16u * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)**7.56.1.27 NppStatus nppiConvert_16u8u_AC4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)**

Four channel 16-bit unsigned to 8-bit unsigned conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.28 NppStatus nppiConvert_16u8u_C1R (const Npp16u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Single channel 16-bit unsigned to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.29 NppStatus nppiConvert_16u8u_C3R (const Npp16u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Three channel 16-bit unsigned to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.30 NppStatus nppiConvert_16u8u_C4R (const Npp16u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

Four channel 16-bit unsigned to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.31 NppStatus nppiConvert_32f16s_AC4R (const Npp32f **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Four channel 32-bit floating point to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.32 NppStatus nppiConvert_32f16s_C1R (const Npp32f **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Single channel 32-bit floating point to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.33 NppStatus nppiConvert_32f16s_C1RSfs (const Npp32f * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)

Single channel 32-bit floating point to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.34 NppStatus nppiConvert_32f16s_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Three channel 32-bit floating point to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.35 NppStatus nppiConvert_32f16s_C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Four channel 32-bit floating point to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.36 NppStatus nppiConvert_32f16u_AC4R (const Npp32f **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Four channel 32-bit floating point to 16-bit unsigned conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.37 NppStatus nppiConvert_32f16u_C1R (const Npp32f **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Single channel 32-bit floating point to 16-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.38 NppStatus nppiConvert_32f16u_C1RSfs (const Npp32f * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)

Single channel 32-bit floating point to 16-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.
nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.39 NppStatus nppiConvert_32f16u_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Three channel 32-bit floating point to 16-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.40 NppStatus nppiConvert_32f16u_C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Four channel 32-bit floating point to 16-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.41 NppStatus nppiConvert_32f32s_C1RSfs (const Npp32f * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)

Single channel 32-bit floating point to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.42 NppStatus nppiConvert_32f32u_C1RSfs (const Npp32f * pSrc, int nSrcStep, Npp32u * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)

Single channel 32-bit floating point to 32-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

nScaleFactor Integer Result Scaling.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.43 NppStatus nppiConvert_32f8s_AC4R (const Npp32f * pSrc, int nSrcStep, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode)

Four channel 32-bit floating point to 8-bit signed conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.44 NppStatus nppiConvert_32f8s_C1R (const Npp32f * pSrc, int nSrcStep, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode)

Single channel 32-bit floating point to 8-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.45 NppStatus nppiConvert_32f8s_C1RSfs (const Npp32f * pSrc, int nSrcStep, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)

Single channel 32-bit floating point to 8-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.46 NppStatus nppiConvert_32f8s_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Three channel 32-bit floating point to 8-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.47 NppStatus nppiConvert_32f8s_C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Four channel 32-bit floating point to 8-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.48 NppStatus nppiConvert_32f8u_AC4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Four channel 32-bit floating point to 8-bit unsigned conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.49 NppStatus nppiConvert_32f8u_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Single channel 32-bit floating point to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.50 NppStatus nppiConvert_32f8u_C1RSfs (const Npp32f * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)

Single channel 32-bit floating point to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

nScaleFactor Integer Result Scaling.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.51 NppStatus nppiConvert_32f8u_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Three channel 32-bit floating point to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.52 NppStatus nppiConvert_32f8u_C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*)

Four channel 32-bit floating point to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eRoundMode Flag specifying how fractional float values are rounded to integer values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.53 NppStatus nppiConvert_32s16s_C1RSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)

7.56.1.54 NppStatus nppiConvert_32s16u_C1RSfs (const Npp32s * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)

7.56.1.55 NppStatus nppiConvert_32s32f_C1R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 32-bit signed to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.56 NppStatus nppiConvert_32s32u_C1Rs (const Npp32s * *pSrc*, int *nSrcStep*, Npp32u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 32-bit signed to 32-bit unsigned conversion with saturation.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.57 NppStatus nppiConvert_32s8s_AC4R (const Npp32s * *pSrc*, int *nSrcStep*, Npp8s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 32-bit signed to 8-bit signed conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.58 NppStatus nppiConvert_32s8s_C1R (const Npp32s **pSrc*, int *nSrcStep*, Npp8s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 32-bit signed to 8-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.59 NppStatus nppiConvert_32s8s_C3R (const Npp32s **pSrc*, int *nSrcStep*, Npp8s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 32-bit signed to 8-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.60 NppStatus nppiConvert_32s8s_C4R (const Npp32s **pSrc*, int *nSrcStep*, Npp8s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 32-bit signed to 8-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.61 NppStatus nppiConvert_32s8u_AC4R (const Npp32s **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 32-bit signed to 8-bit unsigned conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.62 NppStatus nppiConvert_32s8u_C1R (const Npp32s **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 32-bit signed to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.63 NppStatus nppiConvert_32s8u_C3R (const Npp32s **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 32-bit signed to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.64 NppStatus nppiConvert_32s8u_C4R (const Npp32s **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 32-bit signed to 8-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.65 NppStatus nppiConvert_32u16s_C1RSfs (const Npp32u **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)**7.56.1.66 NppStatus nppiConvert_32u16u_C1RSfs (const Npp32u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppRoundMode *eRoundMode*, int *nScaleFactor*)****7.56.1.67 NppStatus nppiConvert_32u32f_C1R (const Npp32u **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)**

Single channel 32-bit unsigned to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

- 7.56.1.68** `NppStatus nppiConvert_32u32s_C1RSfs (const Npp32u * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`
- 7.56.1.69** `NppStatus nppiConvert_32u8s_C1RSfs (const Npp32u * pSrc, int nSrcStep, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`
- 7.56.1.70** `NppStatus nppiConvert_32u8u_C1RSfs (const Npp32u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)`
- 7.56.1.71** `NppStatus nppiConvert_8s16s_C1R (const Npp8s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI)`

Single channel 8-bit signed to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

- 7.56.1.72** `NppStatus nppiConvert_8s16u_C1Rs (const Npp8s * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI)`

Single channel 8-bit signed to 16-bit unsigned conversion with saturation.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.73 NppStatus nppiConvert_8s32f_AC4R (const Npp8s **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit signed to 32-bit floating-point conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.74 NppStatus nppiConvert_8s32f_C1R (const Npp8s **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 8-bit signed to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.56.1.75 NppStatus nppiConvert_8s32f_C3R (const Npp8s **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 8-bit signed to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.76 NppStatus nppiConvert_8s32f_C4R (const Npp8s * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI)

Four channel 8-bit signed to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.77 NppStatus nppiConvert_8s32s_AC4R (const Npp8s * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Four channel 8-bit signed to 32-bit signed conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.78 NppStatus nppiConvert_8s32s_C1R (const Npp8s * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Single channel 8-bit signed to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.79 NppStatus nppiConvert_8s32s_C3R (const Npp8s * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Three channel 8-bit signed to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.80 NppStatus nppiConvert_8s32s_C4R (const Npp8s * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, NppiSize oSizeROI)

Four channel 8-bit signed to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.81 NppStatus nppiConvert_8s32u_C1Rs (const Npp8s **pSrc*, int *nSrcStep*, Npp32u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 8-bit signed to 32-bit unsigned conversion with saturation.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.82 NppStatus nppiConvert_8s8u_C1Rs (const Npp8s **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 8-bit signed to 8-bit unsigned conversion with saturation.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.83 NppStatus nppiConvert_8u16s_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit unsigned to 16-bit signed conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.84 NppStatus nppiConvert_8u16s_C1R (const Npp8u **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 8-bit unsigned to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.85 NppStatus nppiConvert_8u16s_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 8-bit unsigned to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.86 NppStatus nppiConvert_8u16s_C4R (const Npp8u **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit unsigned to 16-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.87 NppStatus nppiConvert_8u16u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit unsigned to 16-bit unsigned conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.88 NppStatus nppiConvert_8u16u_C1R (const Npp8u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 8-bit unsigned to 16-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.89 NppStatus nppiConvert_8u16u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 8-bit unsigned to 16-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.90 NppStatus nppiConvert_8u16u_C4R (const Npp8u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit unsigned to 16-bit unsigned conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.91 NppStatus nppiConvert_8u32f_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit unsigned to 32-bit floating-point conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.92 NppStatus nppiConvert_8u32f_C1R (const Npp8u **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 8-bit unsigned to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.93 NppStatus nppiConvert_8u32f_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 8-bit unsigned to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.94 NppStatus nppiConvert_8u32f_C4R (const Npp8u **pSrc*, int *nSrcStep*, Npp32f **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit unsigned to 32-bit floating-point conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.95 NppStatus nppiConvert_8u32s_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit unsigned to 32-bit signed conversion, not affecting Alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.96 NppStatus nppiConvert_8u32s_C1R (const Npp8u **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Single channel 8-bit unsigned to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.97 NppStatus nppiConvert_8u32s_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Three channel 8-bit unsigned to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.98 NppStatus nppiConvert_8u32s_C4R (const Npp8u **pSrc*, int *nSrcStep*, Npp32s **pDst*, int *nDstStep*, NppiSize *oSizeROI*)

Four channel 8-bit unsigned to 32-bit signed conversion.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.56.1.99 NppStatus nppiConvert_8u8s_C1RSfs (const Npp8u * pSrc, int nSrcStep, Npp8s * pDst, int nDstStep, NppiSize oSizeROI, NppRoundMode eRoundMode, int nScaleFactor)

7.57 Copy Constant Border

Copy Const Border

Methods for copying images and padding borders with a constant, user-specifiable color.

- [NppStatus nppiCopyConstBorder_8u_C1R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [NppiSize](#) oSrcSizeROI, [Npp8u](#) *pDst, int nDstStep, [NppiSize](#) oDstSizeROI, int nTopBorderHeight, int nLeftBorderWidth, [Npp8u](#) nValue)
8-bit unsigned image copy width constant border color.
- [NppStatus nppiCopyConstBorder_8u_C4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [NppiSize](#) oSrcSizeROI, [Npp8u](#) *pDst, int nDstStep, [NppiSize](#) oDstSizeROI, int nTopBorderHeight, int nLeftBorderWidth, const [Npp8u](#) aValue[4])
4channel 8-bit unsigned image copy with constant border color.
- [NppStatus nppiCopyConstBorder_8u_AC4R](#) (const [Npp8u](#) *pSrc, int nSrcStep, [NppiSize](#) oSrcSizeROI, [Npp8u](#) *pDst, int nDstStep, [NppiSize](#) oDstSizeROI, int nTopBorderHeight, int nLeftBorderWidth, const [Npp8u](#) aValue[3])
4 channel 8-bit unsigned image copy with constant border color.
- [NppStatus nppiCopyConstBorder_32s_C1R](#) (const [Npp32s](#) *pSrc, int nSrcStep, [NppiSize](#) oSrcSizeROI, [Npp32s](#) *pDst, int nDstStep, [NppiSize](#) oDstSizeROI, int nTopBorderHeight, int nLeftBorderWidth, [Npp32s](#) nValue)
32-bit image copy with constant border color.

7.57.1 Function Documentation

7.57.1.1 [NppStatus nppiCopyConstBorder_32s_C1R](#) (const [Npp32s](#) * pSrc, int nSrcStep, [NppiSize](#) oSrcSizeROI, [Npp32s](#) * pDst, int nDstStep, [NppiSize](#) oDstSizeROI, int nTopBorderHeight, int nLeftBorderWidth, [Npp32s](#) nValue)

32-bit image copy with constant border color.

See [nppiCopyConstBorder_8u_C1R\(\)](#) for detailed documentation.

Parameters:

- pSrc** Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSrcSizeROI Size of the source region-of-interest.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstSizeROI Size of the destination region-of-interest.
nTopBorderHeight Height of top border.
nLeftBorderWidth Width of left border.
nValue Border luminance value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.57.1.2 NppStatus nppiCopyConstBorder_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSrcSizeROI, Npp8u * pDst, int nDstStep, NppiSize oDstSizeROI, int nTopBorderHeight, int nLeftBorderWidth, const Npp8u aValue[3])

4 channel 8-bit unsigned image copy with constant border color.

See [nppiCopyConstBorder_8u_C1R\(\)](#) for detailed documentation.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSrcSizeROI Size of the source region-of-interest.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstSizeROI Size of the destination region-of-interest.
nTopBorderHeight Height of top border.
nLeftBorderWidth Width of left border.
aValue Vector of the RGB values of the border pixels. Because this method does not affect the destination image's alpha channel, only three components of the border color are needed.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.57.1.3 NppStatus nppiCopyConstBorder_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSrcSizeROI, Npp8u * pDst, int nDstStep, NppiSize oDstSizeROI, int nTopBorderHeight, int nLeftBorderWidth, Npp8u nValue)

8-bit unsigned image copy width constant border color.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSrcSizeROI Size of the source region of pixels.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstSizeROI Size (width, height) of the destination region, i.e. the region that gets filled with data from the source image (inner part) and constant border color (outer part).
nTopBorderHeight Height (in pixels) of the top border. The height of the border at the bottom of the destination ROI is implicitly defined by the size of the source ROI: nBottomBorderHeight = oDstSizeROI.height - nTopBorderHeight - oSrcSizeROI.height.
nLeftBorderWidth Width (in pixels) of the left border. The width of the border at the right side of the destination ROI is implicitly defined by the size of the source ROI: nRightBorderWidth = oDstSizeROI.width - nLeftBorderWidth - oSrcSizeROI.width.
nValue The pixel value to be set for border pixels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.57.1.4 NppStatus nppiCopyConstBorder_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSrcSizeROI*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oDstSizeROI*, int *nTopBorderHeight*, int *nLeftBorderWidth*, const Npp8u *aValue*[4])

4channel 8-bit unsigned image copy with constant border color.

See [nppiCopyConstBorder_8u_C1R\(\)](#) for detailed documentation.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSizeROI Size of the source region-of-interest.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstSizeROI Size of the destination region-of-interest.

nTopBorderHeight Height of top border.

nLeftBorderWidth Width of left border.

aValue Vector of the RGBA values of the border pixels to be set.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.58 Transpose And Swap Channels

Image Transpose

Methods for transposing images of various types.

Like matrix transpose, image transpose is a mirror along the image's diagonal (upper-left to lower-right corner).

- **NppStatus nppiTranspose_8u_C1R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oROI)

8-bit image transpose.

Image Color Channel Swap

Methods for exchanging the color channels of an image.

The methods support arbitrary permutations of the original channels, including replication.

- **NppStatus nppiSwapChannels_8u_C4IR** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const int aDstOrder[4])

4 channel 8-bit unsigned swap channels, in-place.

7.58.1 Function Documentation

7.58.1.1 NppStatus nppiSwapChannels_8u_C4IR (**Npp8u** **pSrcDst*, int *nSrcDstStep*, **NppiSize** *oSizeROI*, const int *aDstOrder*[4])

4 channel 8-bit unsigned swap channels, in-place.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aDstOrder Integer array describing how channel values are permuted. The n-th entry of the array contains the number of the channel that is stored in the n-th channel of the output image. E.g. Given an RGBA image, aDstOrder = [3,2,1,0] converts this to ABGR channel order.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.58.1.2 NppStatus nppiTranspose_8u_C1R (const **Npp8u** **pSrc*, int *nSrcStep*, **Npp8u** **pDst*, int *nDstStep*, **NppiSize** *oROI*)

8-bit image transpose.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Pointer to the destination ROI.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.59 Filtering Functions

Linear and non-linear image filtering functions.

Modules

- [1D Linear Filter](#)
- [1D Window Sum](#)
- [Convolution](#)
- [2D Fixed Linear Filters](#)
- [Rank Filters](#)

7.59.1 Detailed Description

Linear and non-linear image filtering functions.

7.60 1D Linear Filter

1D Linear Filter

1D mask Linear Convolution Filter, with rescaling, for 8 bit images.

- `NppStatus nppiFilterColumn_8u_C1R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oROI, const Npp32s *pKernel, Npp32s nMaskSize, Npp32s nAnchor, Npp32s nDivisor)`
8-bit unsigned 1D (column) image convolution.
- `NppStatus nppiFilterColumn_8u_C4R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oROI, const Npp32s *pKernel, Npp32s nMaskSize, Npp32s nAnchor, Npp32s nDivisor)`
4 channel 8-bit unsigned 1D (column) image convolution.
- `NppStatus nppiFilterRow_8u_C1R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oROI, const Npp32s *pKernel, Npp32s nMaskSize, Npp32s nAnchor, Npp32s nDivisor)`
8-bit unsigned 1D (row) image convolution.
- `NppStatus nppiFilterRow_8u_C4R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oROI, const Npp32s *pKernel, Npp32s nMaskSize, Npp32s nAnchor, Npp32s nDivisor)`
4 channel 8-bit unsigned 1D (row) image convolution.

7.60.1 Function Documentation

7.60.1.1 `NppStatus nppiFilterColumn_8u_C1R (const Npp8u * pSrc, Npp32s nSrcStep, Npp8u * pDst, Npp32s nDstStep, NppiSize oROI, const Npp32s * pKernel, Npp32s nMaskSize, Npp32s nAnchor, Npp32s nDivisor)`

8-bit unsigned 1D (column) image convolution.

Apply convolution filter with user specified 1D column of weights. Result pixel is equal to the sum of the products between the kernel coefficients (pKernel array) and corresponding neighboring column pixel values in the source image defined by nKernelDim and nAnchorY, divided by nDivisor.

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oROI` Region-of-Interest (ROI).

`pKernel` Pointer to the start address of the kernel coefficient array. Coefficients are expected to be stored in reverse order.

`nMaskSize` Length of the linear kernel array.

`nAnchor` Y offset of the kernel origin frame of reference w.r.t the source pixel.

nDivisor The factor by which the convolved summation from the Filter operation should be divided. If equal to the sum of coefficients, this will keep the maximum result value within full scale.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.60.1.2 NppStatus nppiFilterColumn_8u_C4R (const Npp8u * pSrc, Npp32s nSrcStep, Npp8u * pDst, Npp32s nDstStep, NppiSize oROI, const Npp32s * pKernel, Npp32s nMaskSize, Npp32s nAnchor, Npp32s nDivisor)

4 channel 8-bit unsigned 1D (column) image convolution.

Apply convolution filter with user specified 1D column of weights. Result pixel is equal to the sum of the products between the kernel coefficients (pKernel array) and corresponding neighboring column pixel values in the source image defined by nKernelDim and nAnchorY, divided by nDivisor.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oROI Region-of-Interest (ROI).

pKernel Pointer to the start address of the kernel coefficient array. Coefficients are expected to be stored in reverse order.

nMaskSize Length of the linear kernel array.

nAnchor Y offset of the kernel origin frame of reference w.r.t the source pixel.

nDivisor The factor by which the convolved summation from the Filter operation should be divided. If equal to the sum of coefficients, this will keep the maximum result value within full scale.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.60.1.3 NppStatus nppiFilterRow_8u_C1R (const Npp8u * pSrc, Npp32s nSrcStep, Npp8u * pDst, Npp32s nDstStep, NppiSize oROI, const Npp32s * pKernel, Npp32s nMaskSize, Npp32s nAnchor, Npp32s nDivisor)

8-bit unsigned 1D (row) image convolution.

Apply general linear Row convolution filter, with rescaling, in a 1D mask region around each source pixel for 1-channel 8 bit/pixel images. Result pixel is equal to the sum of the products between the kernel coefficients (pKernel array) and corresponding neighboring row pixel values in the source image defined by iKernelDim and iAnchorX, divided by iDivisor.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oROI Region-of-Interest (ROI).

pKernel Pointer to the start address of the kernel coefficient array. Coefficients are expected to be stored in reverse order.

nMaskSize Length of the linear kernel array.

nAnchor X offset of the kernel origin frame of reference w.r.t the source pixel.

nDivisor The factor by which the convolved summation from the Filter operation should be divided. If equal to the sum of coefficients, this will keep the maximum result value within full scale.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.60.1.4 NppStatus nppiFilterRow_8u_C4R (const Npp8u * *pSrc*, Npp32s *nSrcStep*, Npp8u * *pDst*, Npp32s *nDstStep*, NppiSize *oROI*, const Npp32s * *pKernel*, Npp32s *nMaskSize*, Npp32s *nAnchor*, Npp32s *nDivisor*)

4 channel 8-bit unsigned 1D (row) image convolution.

Apply general linear Row convolution filter, with rescaling, in a 1D mask region around each source pixel for 1-channel 8 bit/pixel images. Result pixel is equal to the sum of the products between the kernel coefficients (pKernel array) and corresponding neighboring row pixel values in the source image defined by iKernelDim and iAnchorX, divided by iDivisor.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oROI Region-of-Interest (ROI).

pKernel Pointer to the start address of the kernel coefficient array. Coefficients are expected to be stored in reverse order.

nMaskSize Length of the linear kernel array.

nAnchor X offset of the kernel origin frame of reference w.r.t the source pixel.

nDivisor The factor by which the convolved summation from the Filter operation should be divided. If equal to the sum of coefficients, this will keep the maximum result value within full scale.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.61 1D Window Sum

1D Window Sum

1D mask Window Sum for 8 bit images.

- **NppStatus nppiSumWindowColumn_8u32f_C1R** (const **Npp8u *pSrc**, **Npp32s nSrcStep**, **Npp32f *pDst**, **Npp32s nDstStep**, **NppiSize oROI**, **Npp32s nMaskSize**, **Npp32s nAnchor**)
8-bit unsigned 1D (column) sum to 32f.
- **NppStatus nppiSumWindowRow_8u32f_C1R** (const **Npp8u *pSrc**, **Npp32s nSrcStep**, **Npp32f *pDst**, **Npp32s nDstStep**, **NppiSize oROI**, **Npp32s nMaskSize**, **Npp32s nAnchor**)
8-bit unsigned 1D (row) sum to 32f.

7.61.1 Function Documentation

7.61.1.1 NppStatus nppiSumWindowColumn_8u32f_C1R (const Npp8u *pSrc, Npp32s nSrcStep, Npp32f *pDst, Npp32s nDstStep, NppiSize oROI, Npp32s nMaskSize, Npp32s nAnchor)

8-bit unsigned 1D (column) sum to 32f.

Apply Column Window Summation filter over a 1D mask region around each source pixel for 1-channel 8 bit/pixel input images with 32-bit floating point output. Result 32-bit floating point pixel is equal to the sum of the corresponding and neighboring column pixel values in a mask region of the source image defined by nMaskSize and nAnchor.

Parameters:

- pSrc** Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
nMaskSize Length of the linear kernel array.
nAnchor Y offset of the kernel origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.61.1.2 NppStatus nppiSumWindowRow_8u32f_C1R (const Npp8u *pSrc, Npp32s nSrcStep, Npp32f *pDst, Npp32s nDstStep, NppiSize oROI, Npp32s nMaskSize, Npp32s nAnchor)

8-bit unsigned 1D (row) sum to 32f.

Apply Row Window Summation filter over a 1D mask region around each source pixel for 1-channel 8-bit pixel input images with 32-bit floating point output. Result 32-bit floating point pixel is equal to the sum of the corresponding and neighboring row pixel values in a mask region of the source image defined by iKernelDim and iAnchorX.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
nMaskSize Length of the linear kernel array.
nAnchor X offset of the kernel origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.62 Convolution

Convolution (2D Masks)

General purpose 2D convolution filters.

- `NppStatus nppiFilter_8u_C1R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oSizeROI, const Npp32s *pKernel, NppiSize oKernelSize, NppiPoint oAnchor, Npp32s nDivisor)`

8-bit unsigned convolution filter.

- `NppStatus nppiFilter_8u_C4R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oSizeROI, const Npp32s *pKernel, NppiSize oKernelSize, NppiPoint oAnchor, Npp32s nDivisor)`

4 channel 8-bit unsigned convolution filter.

7.62.1 Function Documentation

7.62.1.1 `NppStatus nppiFilter_8u_C1R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oSizeROI, const Npp32s *pKernel, NppiSize oKernelSize, NppiPoint oAnchor, Npp32s nDivisor)`

8-bit unsigned convolution filter.

Pixels under the mask are multiplied by the respective weights in the mask and the results are summed. Before writing the result pixel the sum is scaled back via division by nDivisor.

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

`pKernel` Pointer to the start address of the kernel coefficient array. Coeffcients are expected to be stored in reverse order.

`oKernelSize` Width and Height of the rectangular kernel.

`oAnchor` X and Y offsets of the kernel origin frame of reference w.r.t the source pixel.

`nDivisor` The factor by which the convolved summation from the Filter operation should be divided. If equal to the sum of coefficients, this will keep the maximum result value within full scale.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.62.1.2 NppStatus nppiFilter_8u_C4R (const Npp8u * pSrc, Npp32s nSrcStep, Npp8u * pDst, Npp32s nDstStep, NppiSize oSizeROI, const Npp32s * pKernel, NppiSize oKernelSize, NppiPoint oAnchor, Npp32s nDivisor)

4 channel 8-bit unsigned convolution filter.

Pixels under the mask are multiplied by the respective weights in the mask and the results are summed. Before writing the result pixel the sum is scaled back via division by nDivisor.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pKernel Pointer to the start address of the kernel coefficient array. Coeffcients are expected to be stored in reverse order.

oKernelSize Width and Height of the rectangular kernel.

oAnchor X and Y offsets of the kernel origin frame of reference w.r.t the source pixel.

nDivisor The factor by which the convolved summation from the Filter operation should be divided. If equal to the sum of coefficients, this will keep the maximum result value within full scale.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.63 2D Fixed Linear Filters

2D Linear Fixed Filters

2D linear fixed filters for 8 bit images.

- **NppStatus nppiFilterBox_8u_C1R** (const **Npp8u *pSrc**, **Npp32s nSrcStep**, **Npp8u *pDst**, **Npp32s nDstStep**, **NppiSize oSizeROI**, **NppiSize oMaskSize**, **NppiPoint oAnchor**)
8-bit unsigned box filter.
- **NppStatus nppiFilterBox_8u_C4R** (const **Npp8u *pSrc**, **Npp32s nSrcStep**, **Npp8u *pDst**, **Npp32s nDstStep**, **NppiSize oSizeROI**, **NppiSize oMaskSize**, **NppiPoint oAnchor**)
4 channel 8-bit unsigned box filter.

7.63.1 Function Documentation

7.63.1.1 NppStatus nppiFilterBox_8u_C1R (const Npp8u * pSrc, Npp32s nSrcStep, Npp8u * pDst, Npp32s nDstStep, NppiSize oSizeROI, NppiSize oMaskSize, NppiPoint oAnchor)

8-bit unsigned box filter.

Computes the average pixel values of the pixels under a rectangular mask.

Parameters:

- pSrc** Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
oMaskSize Width and Height of the neighborhood region for the local Avg operation.
oAnchor X and Y offsets of the kernel origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.63.1.2 NppStatus nppiFilterBox_8u_C4R (const Npp8u * pSrc, Npp32s nSrcStep, Npp8u * pDst, Npp32s nDstStep, NppiSize oSizeROI, NppiSize oMaskSize, NppiPoint oAnchor)

4 channel 8-bit unsigned box filter.

Computes the average pixel values of the pixels under a rectangular mask.

Parameters:

- pSrc** Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

oMaskSize Width and Height of the neighborhood region for the local Avg operation.

oAnchor X and Y offsets of the kernel origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.64 Rank Filters

Image Rank Filters

Min, Median, and Max image filters.

- **NppStatus nppiFilterMax_8u_C1R** (const **Npp8u** **pSrc*, **Npp32s** *nSrcStep*, **Npp8u** **pDst*, **Npp32s** *nDstStep*, **NppiSize** *oSizeROI*, **NppiSize** *oMaskSize*, **NppiPoint** *oAnchor*)
8-bit unsigned maximum filter.
- **NppStatus nppiFilterMax_8u_C4R** (const **Npp8u** **pSrc*, **Npp32s** *nSrcStep*, **Npp8u** **pDst*, **Npp32s** *nDstStep*, **NppiSize** *oSizeROI*, **NppiSize** *oMaskSize*, **NppiPoint** *oAnchor*)
4 channel 8-bit unsigned maximum filter.
- **NppStatus nppiFilterMin_8u_C1R** (const **Npp8u** **pSrc*, **Npp32s** *nSrcStep*, **Npp8u** **pDst*, **Npp32s** *nDstStep*, **NppiSize** *oSizeROI*, **NppiSize** *oMaskSize*, **NppiPoint** *oAnchor*)
8-bit unsigned minimum filter.
- **NppStatus nppiFilterMin_8u_C4R** (const **Npp8u** **pSrc*, **Npp32s** *nSrcStep*, **Npp8u** **pDst*, **Npp32s** *nDstStep*, **NppiSize** *oSizeROI*, **NppiSize** *oMaskSize*, **NppiPoint** *oAnchor*)
4 channel 8-bit unsigned minimum filter.

7.64.1 Function Documentation

7.64.1.1 NppStatus nppiFilterMax_8u_C1R (const Npp8u * *pSrc*, Npp32s *nSrcStep*, Npp8u * *pDst*, Npp32s *nDstStep*, NppiSize *oSizeROI*, NppiSize *oMaskSize*, NppiPoint *oAnchor*)

8-bit unsigned maximum filter.

Result pixel value is the maximum of pixel values under the rectangular mask region.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

oMaskSize Width and Height of the neighborhood region for the local Max operation.

oAnchor X and Y offsets of the kernel origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.64.1.2 NppStatus nppiFilterMax_8u_C4R (const Npp8u * *pSrc*, Npp32s *nSrcStep*, Npp8u * *pDst*, Npp32s *nDstStep*, NppiSize *oSizeROI*, NppiSize *oMaskSize*, NppiPoint *oAnchor*)

4 channel 8-bit unsigned maximum filter.

Result pixel value is the maximum of pixel values under the rectangular mask region.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

oMaskSize Width and Height of the neighborhood region for the local Max operation.

oAnchor X and Y offsets of the kernel origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.64.1.3 NppStatus nppiFilterMin_8u_C1R (const Npp8u * *pSrc*, Npp32s *nSrcStep*, Npp8u * *pDst*, Npp32s *nDstStep*, NppiSize *oSizeROI*, NppiSize *oMaskSize*, NppiPoint *oAnchor*)

8-bit unsigned minimum filter.

Result pixel value is the minimum of pixel values under the rectangular mask region.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

oMaskSize Width and Height of the neighborhood region for the local Max operation.

oAnchor X and Y offsets of the kernel origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.64.1.4 NppStatus nppiFilterMin_8u_C4R (const Npp8u * *pSrc*, Npp32s *nSrcStep*, Npp8u * *pDst*, Npp32s *nDstStep*, NppiSize *oSizeROI*, NppiSize *oMaskSize*, NppiPoint *oAnchor*)

4 channel 8-bit unsigned minimum filter.

Result pixel value is the minimum of pixel values under the rectangular mask region.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

oMaskSize Width and Height of the neighborhood region for the local Max operation.

oAnchor X and Y offsets of the kernel origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.65 Geometry Transforms

Routines manipulating an image's geometry.

Modules

- [Resize](#)
- [Rotate](#)

Rotates an image around the origin (0,0) and then shifts it.

- [Mirror](#)
- [Affine Transforms](#)
- [Perspective Transform](#)

7.65.1 Detailed Description

Routines manipulating an image's geometry.

7.65.2 Geometric Transform API Specifics

This section covers some of the unique API features common to the geometric transform primitives.

7.65.2.1 Geometric Transforms and ROIs

Geometric transforms operate on source and destination ROIs. The way these ROIs affect the processing of pixels differs from other (non geometric) image-processing primitives: Only pixels in the intersection of the destination ROI and the transformed source ROI are being processed.

The typical processing proceeds as follows:

1. Transform the rectangular source ROI (given in source image coordinates) into the destination image space. This yields a quadrilateral.
2. Write only pixels in the intersection of the transformed source ROI and the destination ROI.

7.65.2.2 Pixel Interpolation

The majority of image geometry transform operation need to perform a resampling of the source image as source and destination pixels are not coincident.

NPP supports the following pixel interpolation modes (in order from fastest to slowest and lowest to highest quality):

- nearest neighbor
- linear interpolation
- cubic convolution
- supersampling
- interpolation using Lanczos window function

7.66 Resize

Resize

Resizes 8 bit images.

Handles C1 and C4 images.

- `NppStatus nppiResize_8u_C1R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiSize dstROISize, double xFactor, double yFactor, int eInterpolation)`

8-bit unsigned image resize.

- `NppStatus nppiResize_8u_C4R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiSize dstROISize, double xFactor, double yFactor, int eInterpolation)`

4 channel 8-bit unsigned image resize.

7.66.1 Detailed Description

7.66.2 Error Codes

The resize primitives return the following error codes:

- `NPP_WRONG_INTERSECTION_ROI_ERROR` indicates an error condition if srcROIRect has no intersection with the source image.
- `NPP_RESIZE_NO_OPERATION_ERROR` if either destination ROI width or height is less than 1 pixel.
- `NPP_RESIZE_FACTOR_ERROR` Indicates an error condition if either xFactor or yFactor is less than or equal to zero.
- `NPP_INTERPOLATION_ERROR` if eInterpolation has an illegal value.

7.66.3 Function Documentation

7.66.3.1 `NppStatus nppiResize_8u_C1R (const Npp8u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u * pDst, int nDstStep, NppiSize dstROISize, double xFactor, double yFactor, int eInterpolation)`

8-bit unsigned image resize.

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`oSrcSize` Size in pixels of the source image

`oSrcROI` Region of interest in the source image.

`pDst` Destination-Image Pointer.

nDstStep Destination-Image Line Step.

dstROISize Size in pixels of the destination image

xFactor Factors by which x dimension is changed

yFactor Factors by which y dimension is changed

eInterpolation The type of eInterpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Error Codes](#)

7.66.3.2 NppStatus nppiResize_8u_C4R (const Npp8u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u * pDst, int nDstStep, NppiSize dstROISize, double xFactor, double yFactor, int eInterpolation)

4 channel 8-bit unsigned image resize.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

dstROISize Size in pixels of the destination image

xFactor Factors by which x dimension is changed

yFactor Factors by which y dimension is changed

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Error Codes](#)

7.67 Rotate

Rotates an image around the origin (0,0) and then shifts it.

Utility Functions

- `NppStatus nppiGetRotateQuad (NppiRect oSrcROI, double aQuad[4][2], double nAngle, double nShiftX, double nShiftY)`

Compute shape of rotated image.

- `NppStatus nppiGetRotateBound (NppiRect oSrcROI, double aBoundingBox[2][2], double nAngle, double nShiftX, double nShiftY)`

Compute bounding-box of rotated image.

Rotate

- `NppStatus nppiRotate_8u_C1R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)`

8-bit unsigned image rotate.

- `NppStatus nppiRotate_8u_C3R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)`

3 channel 8-bit unsigned image rotate.

- `NppStatus nppiRotate_8u_C4R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)`

4 channel 8-bit unsigned image rotate.

- `NppStatus nppiRotate_8u_AC4R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)`

4 channel 8-bit unsigned image rotate ignoring alpha channel.

- `NppStatus nppiRotate_16u_C1R (const Npp16u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u *pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)`

16-bit unsigned image rotate.

- `NppStatus nppiRotate_16u_C3R (const Npp16u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u *pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)`

3 channel 16-bit unsigned image rotate.

- `NppStatus nppiRotate_16u_C4R (const Npp16u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u *pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)`

4 channel 16-bit unsigned image rotate.

- **NppStatus nppiRotate_16u_AC4R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

4 channel 16-bit unsigned image rotate ignoring alpha channel.

- **NppStatus nppiRotate_32f_C1R** (const **Npp32f** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32f** *pDst, int nDstStep, **NppiRect** oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

32-bit float image rotate.

- **NppStatus nppiRotate_32f_C3R** (const **Npp32f** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32f** *pDst, int nDstStep, **NppiRect** oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

3 channel 32-bit float image rotate.

- **NppStatus nppiRotate_32f_C4R** (const **Npp32f** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32f** *pDst, int nDstStep, **NppiRect** oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

4 channel 32-bit float image rotate.

- **NppStatus nppiRotate_32f_AC4R** (const **Npp32f** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32f** *pDst, int nDstStep, **NppiRect** oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

4 channel 32-bit float image rotate ignoring alpha channel.

7.67.1 Detailed Description

Rotates an image around the origin (0,0) and then shifts it.

7.67.2 Rotate Error Codes

- **NPP_INTERPOLATION_ERROR** if eInterpolation has an illegal value.
- **NPP_RECT_ERROR** Indicates an error condition if width or height of the intersection of the oSrcROI and source image is less than or equal to 1.
- **NPP_WRONG_INTERSECTION_ROI_ERROR** indicates an error condition if srcROIRect has no intersection with the source image.
- **NPP_WRONG_INTERSECTION_QUAD_WARNING** indicates a warning that no operation is performed if the transformed source ROI does not intersect the destination ROI.

7.67.3 Function Documentation

7.67.3.1 NppStatus nppiGetRotateBound (**NppiRect** oSrcROI, **double** aBoundingBox[2][2], **double** nAngle, **double** nShiftX, **double** nShiftY)

Compute bounding-box of rotated image.

Parameters:

oSrcROI Region-of-interest of the source image.

aBoundingBox Two 2D points representing the bounding-box of the rotated image. All four points from nppiGetRotateQuad are contained inside the axis-aligned rectangle spanned by the two points of this bounding box.

nAngle The rotation angle.

nShiftX Post-rotation shift in x-direction.

nShiftY Post-rotation shift in y-direction.

Returns:

[ROI Related Error Codes](#).

7.67.3.2 NppStatus nppiGetRotateQuad (NppiRect *oSrcROI*, double *aQuad*[4][2], double *nAngle*, double *nShiftX*, double *nShiftY*)

Compute shape of rotated image.

Parameters:

oSrcROI Region-of-interest of the source image.

aQuad Array of 2D points. These points are the locations of the corners of the rotated ROI.

nAngle The rotation nAngle.

nShiftX Post-rotation shift in x-direction

nShiftY Post-rotation shift in y-direction

Returns:

[ROI Related Error Codes](#).

7.67.3.3 NppStatus nppiRotate_16u_AC4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, double *nAngle*, double *nShiftX*, double *nShiftY*, int *eInterpolation*)

4 channel 16-bit unsigned image rotate ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.4 NppStatus nppiRotate_16u_C1R (const Npp16u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

16-bit unsigned image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.5 NppStatus nppiRotate_16u_C3R (const Npp16u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

3 channel 16-bit unsigned image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.6 NppStatus nppiRotate_16u_C4R (const Npp16u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

4 channel 16-bit unsigned image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.7 NppStatus nppiRotate_32f_AC4R (const Npp32f * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

4 channel 32-bit float image rotate ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.8 NppStatus nppiRotate_32f_C1R (const Npp32f * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

32-bit float image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.9 NppStatus nppiRotate_32f_C3R (const Npp32f * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

3 channel 32-bit float image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.10 NppStatus nppiRotate_32f_C4R (const Npp32f * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

4 channel 32-bit float image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.11 NppStatus nppiRotate_8u_AC4R (const Npp8u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

4 channel 8-bit unsigned image rotate ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.12 NppStatus nppiRotate_8u_C1R (const Npp8u **pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u **pDst*, int *nDstStep*, NppiRect *oDstROI*, double *nAngle*, double *nShiftX*, double *nShiftY*, int *eInterpolation*)

8-bit unsigned image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.13 NppStatus nppiRotate_8u_C3R (const Npp8u **pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u **pDst*, int *nDstStep*, NppiRect *oDstROI*, double *nAngle*, double *nShiftX*, double *nShiftY*, int *eInterpolation*)

3 channel 8-bit unsigned image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.67.3.14 NppStatus nppiRotate_8u_C4R (const Npp8u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u * pDst, int nDstStep, NppiRect oDstROI, double nAngle, double nShiftX, double nShiftY, int eInterpolation)

4 channel 8-bit unsigned image rotate.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize Size in pixels of the source image

oSrcROI Region of interest in the source image.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Region of interest in the destination image.

nAngle The angle of rotation in degrees.

nShiftX Shift along horizontal axis

nShiftY Shift along vertical axis

eInterpolation The type of interpolation to perform resampling

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Rotate Error Codes](#)

7.68 Mirror

Mirror

Mirrors images horizontally, vertically and diagonally.

- **NppStatus nppiMirror_8u_C1R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
8-bit unsigned image mirror.
- **NppStatus nppiMirror_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
3 channel 8-bit unsigned image mirror.
- **NppStatus nppiMirror_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
4 channel 8-bit unsigned image mirror.
- **NppStatus nppiMirror_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
4 channel 8-bit unsigned image mirror not affecting alpha.
- **NppStatus nppiMirror_16u_C1R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
16-bit unsigned image mirror.
- **NppStatus nppiMirror_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
3 channel 16-bit unsigned image mirror.
- **NppStatus nppiMirror_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
4 channel 16-bit unsigned image mirror.
- **NppStatus nppiMirror_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
4 channel 16-bit unsigned image mirror not affecting alpha.
- **NppStatus nppiMirror_32s_C1R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
32-bit image mirror.
- **NppStatus nppiMirror_32s_C3R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
3 channel 32-bit image mirror.
- **NppStatus nppiMirror_32s_C4R** (const **Npp32s** *pSrc, int nSrcStep, **Npp32s** *pDst, int nDstStep, **NppiSize** oROI, **NppiAxis** flip)
4 channel 32-bit image mirror.

- `NppStatus nppiMirror_32s_AC4R (const Npp32s *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, NppiSize oROI, NppiAxis flip)`
4 channel 32-bit image mirror not affecting alpha.
- `NppStatus nppiMirror_32f_C1R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oROI, NppiAxis flip)`
32-bit float image mirror.
- `NppStatus nppiMirror_32f_C3R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oROI, NppiAxis flip)`
3 channel 32-bit float image mirror.
- `NppStatus nppiMirror_32f_C4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oROI, NppiAxis flip)`
4 channel 32-bit float image mirror not affecting alpha.

7.68.1 Detailed Description

7.68.2 Mirror Error Codes

- `NPP_MIRROR_FLIP_ERR` if flip has an illegal value.

7.68.3 Function Documentation

7.68.3.1 `NppStatus nppiMirror_16u_AC4R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oROI, NppiAxis flip)`

4 channel 16-bit unsigned image mirror not affecting alpha.

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`pDst` Destination-Image Pointer.

`nDstStep` Distance in bytes between starts of consecutive lines of the destination image.

`oROI` Region-of-Interest (ROI).

`flip` Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.2 NppStatus nppiMirror_16u_C1R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oROI, NppiAxis flip)

16-bit unsigned image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.3 NppStatus nppiMirror_16u_C3R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oROI, NppiAxis flip)

3 channel 16-bit unsigned image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.4 NppStatus nppiMirror_16u_C4R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oROI, NppiAxis flip)

4 channel 16-bit unsigned image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Distance in bytes between starts of consecutive lines of the destination image.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.5 NppStatus nppiMirror_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

4 channel 32-bit float image mirror not affecting alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Distance in bytes between starts of consecutive lines of the destination image.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.6 NppStatus nppiMirror_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

32-bit float image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.7 NppStatus nppiMirror_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

3 channel 32-bit float image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.8 NppStatus nppiMirror_32f_C4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

4 channel 32-bit float image mirror.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Distance in bytes between starts of consecutive lines of the destination image.

oROI Region-of-Interest (ROI).

flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.9 NppStatus nppiMirror_32s_AC4R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

4 channel 32-bit image mirror not affecting alpha.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Distance in bytes between starts of consecutive lines of the destination image.

oROI Region-of-Interest (ROI).

flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.10 NppStatus nppiMirror_32s_C1R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

32-bit image mirror.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oROI Region-of-Interest (ROI).

flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.11 NppStatus nppiMirror_32s_C3R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

3 channel 32-bit image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.12 NppStatus nppiMirror_32s_C4R (const Npp32s * *pSrc*, int *nSrcStep*, Npp32s * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

4 channel 32-bit image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Distance in bytes between starts of consecutive lines of the destination image.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.13 NppStatus nppiMirror_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

4 channel 8-bit unsigned image mirror not affecting alpha.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Distance in bytes between starts of consecutive lines of the destination image.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.14 NppStatus nppiMirror_8u_C1R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

8-bit unsigned image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.15 NppStatus nppiMirror_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

3 channel 8-bit unsigned image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.68.3.16 NppStatus nppiMirror_8u_C4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oROI*, NppiAxis *flip*)

4 channel 8-bit unsigned image mirror.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Distance in bytes between starts of consecutive lines of the destination image.
oROI Region-of-Interest (ROI).
flip Specifies the axis about which the image is to be mirrored.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Mirror Error Codes](#)

7.69 Affine Transforms

Utility Functions

- `NppStatus nppiGetAffineTransform (NppiRect oSrcROI, const double aQuad[4][2], double aCoeffs[2][3])`

Computes affine transform coefficients based on source ROI and destination quadrilateral.

- `NppStatus nppiGetAffineQuad (NppiRect oSrcROI, double aQuad[4][2], const double aCoeffs[2][3])`

Compute shape of transformed image.

- `NppStatus nppiGetAffineBound (NppiRect oSrcROI, double aBound[2][2], const double aCoeffs[2][3])`

Compute bounding-box of transformed image.

Affine Transform

Transforms (warps) an image based on an affine transform.

The affine transform is given as a 2×3 matrix C. A pixel location (x, y) in the source image is mapped to the location (x', y') in the destination image. The destination image coordinates are computed as follows:

$$x' = c_{00} * x + c_{01} * y + c_{02} \quad y' = c_{10} * x + c_{11} * y + c_{12} \quad C = \begin{bmatrix} c_{00} & c_{01} & c_{02} \\ c_{10} & c_{11} & c_{12} \end{bmatrix}$$

Affine transforms can be understood as a linear transformation (traditional matrix multiplication) and a shift operation. The 2×2 matrix

$$L = \begin{bmatrix} c_{00} & c_{01} \\ c_{10} & c_{11} \end{bmatrix}$$

represents the linear transform portion of the affine transformation. The vector

$$v = \begin{pmatrix} c_{02} \\ c_{12} \end{pmatrix}$$

represents the post-transform shift, i.e. after the pixel location is transformed by L it is translated by v.

- `NppStatus nppiWarpAffine_8u_C1R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Single-channel 8-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_8u_C3R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Three-channel 8-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_8u_C4R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Four-channel 8-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_8u_AC4R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 8-bit unsigned affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffine_8u_P3R` (const `Npp8u *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel planar 8-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_8u_P4R` (const `Npp8u *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel planar 8-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_16u_C1R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Single-channel 16-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_16u_C3R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel 16-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_16u_C4R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 16-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_16u_AC4R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 16-bit unsigned affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffine_16u_P3R` (const `Npp16u *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel planar 16-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_16u_P4R` (const `Npp16u *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel planar 16-bit unsigned affine warp.

- `NppStatus nppiWarpAffine_32s_C1R` (const `Npp32s *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Single-channel 32-bit signed affine warp.

- `NppStatus nppiWarpAffine_32s_C3R` (const `Npp32s *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel 32-bit signed affine warp.

- `NppStatus nppiWarpAffine_32s_C4R` (const `Npp32s *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 32-bit signed affine warp.

- `NppStatus nppiWarpAffine_32s_AC4R` (const `Npp32s *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 32-bit signed affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffine_32s_P3R` (const `Npp32s *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel planar 32-bit signed affine warp.

- `NppStatus nppiWarpAffine_32s_P4R` (const `Npp32s *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel planar 32-bit signed affine warp.

- `NppStatus nppiWarpAffine_32f_C1R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Single-channel 32-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_32f_C3R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel 32-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_32f_C4R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 32-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_32f_AC4R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 32-bit floating-point affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffine_32f_P3R` (const `Npp32f *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel planar 32-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_32f_P4R` (const `Npp32f *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel planar 32-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_64f_C1R` (const `Npp64f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp64f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Single-channel 64-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_64f_C3R` (const `Npp64f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp64f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel 64-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_64f_C4R` (const `Npp64f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp64f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 64-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_64f_AC4R` (const `Npp64f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp64f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 64-bit floating-point affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffine_64f_P3R` (const `Npp64f *aSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp64f *aDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel planar 64-bit floating-point affine warp.

- `NppStatus nppiWarpAffine_64f_P4R` (const `Npp64f *aSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp64f *aDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel planar 64-bit floating-point affine warp.

Backwards Affine Transform

Transforms (warps) an image based on an affine transform.

The affine transform is given as a 2×3 matrix C . A pixel location (x, y) in the source image is mapped to the location (x', y') in the destination image. The destination image coordinates fulfill the following properties:

$$x = c_{00} * x' + c_{01} * y' + c_{02} \quad y = c_{10} * x' + c_{11} * y' + c_{12} \quad C = \begin{bmatrix} c_{00} & c_{01} & c_{02} \\ c_{10} & c_{11} & c_{12} \end{bmatrix}$$

In other words, given matrix C the source image's shape is transferred to the destination image using the inverse matrix C^{-1} :

$$M = C^{-1} = \begin{bmatrix} m_{00} & m_{01} & m_{02} \\ m_{10} & m_{11} & m_{12} \end{bmatrix} \quad x' = m_{00} * x + m_{01} * y + m_{02} \quad y' = m_{10} * x + m_{11} * y + m_{12}$$

- `NppStatus nppiWarpAffineBack_8u_C1R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Single-channel 8-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_8u_C3R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel 8-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_8u_C4R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 8-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_8u_AC4R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 8-bit unsigned integer backwards affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffineBack_8u_P3R` (const `Npp8u *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel planar 8-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_8u_P4R` (const `Npp8u *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel planar 8-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_16u_C1R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Single-channel 16-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_16u_C3R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel 16-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_16u_C4R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 16-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_16u_AC4R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 16-bit unsigned integer backwards affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffineBack_16u_P3R (const Npp16u *pSrc[3], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u *pDst[3], int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Three-channel planar 16-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_16u_P4R (const Npp16u *pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u *pDst[4], int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Four-channel planar 16-bit unsigned integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_32s_C1R (const Npp32s *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Single-channel 32-bit signed integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_32s_C3R (const Npp32s *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Three-channel 32-bit signed integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_32s_C4R (const Npp32s *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Four-channel 32-bit signed integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_32s_AC4R (const Npp32s *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Four-channel 32-bit signed integer backwards affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffineBack_32s_P3R (const Npp32s *pSrc[3], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst[3], int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Three-channel planar 32-bit signed integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_32s_P4R (const Npp32s *pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst[4], int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Four-channel planar 32-bit signed integer backwards affine warp.

- `NppStatus nppiWarpAffineBack_32f_C1R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Single-channel 32-bit floating-point backwards affine warp.

- `NppStatus nppiWarpAffineBack_32f_C3R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[2][3], int eInterpolation)`

Three-channel 32-bit floating-point backwards affine warp.

- `NppStatus nppiWarpAffineBack_32f_C4R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 32-bit floating-point backwards affine warp.

- `NppStatus nppiWarpAffineBack_32f_AC4R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel 32-bit floating-point backwards affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffineBack_32f_P3R` (const `Npp32f *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Three-channel planar 32-bit floating-point backwards affine warp.

- `NppStatus nppiWarpAffineBack_32f_P4R` (const `Npp32f *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[2][3]`, int `eInterpolation`)

Four-channel planar 32-bit floating-point backwards affine warp.

Quad-Based Affine Transform

Transforms (warps) an image based on an affine transform.

The affine transform is computed such that it maps a quadrilateral in source image space to a quadrilateral in destination image space.

An affine transform is fully determined by the mapping of 3 discrete points. The following primitives compute an affine transformation matrix that maps the first three corners of the source quad are mapped to the first three vertices of the destination image quad. If the fourth vertices do not match the transform, an `NPP_AFFINE_QUAD_INCORRECT_WARNING` is returned by the primitive.

- `NppStatus nppiWarpAffineQuad_8u_C1R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, const double `aSrcQuad[4][2]`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aDstQuad[4][2]`, int `eInterpolation`)

Single-channel 32-bit floating-point quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_8u_C3R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, const double `aSrcQuad[4][2]`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aDstQuad[4][2]`, int `eInterpolation`)

Three-channel 8-bit unsigned integer quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_8u_C4R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, const double `aSrcQuad[4][2]`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aDstQuad[4][2]`, int `eInterpolation`)

Four-channel 8-bit unsigned integer quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_8u_AC4R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, const double `aSrcQuad[4][2]`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aDstQuad[4][2]`, int `eInterpolation`)

Four-channel 8-bit unsigned integer quad-based affine warp, ignoring alpha channel.

- **NppStatus nppiWarpAffineQuad_8u_P3R** (const **Npp8u** *pSrc[3], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp8u** *pDst[3], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel planar 8-bit unsigned integer quad-based affine warp.

- **NppStatus nppiWarpAffineQuad_8u_P4R** (const **Npp8u** *pSrc[4], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp8u** *pDst[4], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel planar 8-bit unsigned integer quad-based affine warp.

- **NppStatus nppiWarpAffineQuad_16u_C1R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Single-channel 16-bit unsigned integer quad-based affine warp.

- **NppStatus nppiWarpAffineQuad_16u_C3R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel 16-bit unsigned integer quad-based affine warp.

- **NppStatus nppiWarpAffineQuad_16u_C4R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 16-bit unsigned integer quad-based affine warp.

- **NppStatus nppiWarpAffineQuad_16u_AC4R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 16-bit unsigned integer quad-based affine warp, ignoring alpha channel.

- **NppStatus nppiWarpAffineQuad_16u_P3R** (const **Npp16u** *pSrc[3], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst[3], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel planar 16-bit unsigned integer quad-based affine warp.

- **NppStatus nppiWarpAffineQuad_16u_P4R** (const **Npp16u** *pSrc[4], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst[4], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel planar 16-bit unsigned integer quad-based affine warp.

- **NppStatus nppiWarpAffineQuad_32s_C1R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Single-channel 32-bit signed integer quad-based affine warp.

- **NppStatus nppiWarpAffineQuad_32s_C3R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel 32-bit signed integer quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_32s_C4R (const Npp32s *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32s *pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Four-channel 32-bit signed integer quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_32s_AC4R (const Npp32s *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32s *pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Four-channel 32-bit signed integer quad-based affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffineQuad_32s_P3R (const Npp32s *pSrc[3], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32s *pDst[3], int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Three-channel planar 32-bit signed integer quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_32s_P4R (const Npp32s *pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32s *pDst[4], int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Four-channel planar 32-bit signed integer quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_32f_C1R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Single-channel 32-bit floating-point quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_32f_C3R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Three-channel 32-bit floating-point quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_32f_C4R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Four-channel 32-bit floating-point quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_32f_AC4R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Four-channel 32-bit floating-point quad-based affine warp, ignoring alpha channel.

- `NppStatus nppiWarpAffineQuad_32f_P3R (const Npp32f *pSrc[3], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32f *pDst[3], int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Three-channel planar 32-bit floating-point quad-based affine warp.

- `NppStatus nppiWarpAffineQuad_32f_P4R (const Npp32f *pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp32f *pDst[4], int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)`

Four-channel planar 32-bit floating-point quad-based affine warp.

7.69.1 Detailed Description

7.69.2 Affine Transform Error Codes

- **NPP_RECT_ERROR** Indicates an error condition if width or height of the intersection of the oSrcROI and source image is less than or equal to 1
- **NPP_WRONG_INTERSECTION_ROI_ERROR** Indicates an error condition if oSrcROI has no intersection with the source image
- **NPP_INTERPOLATION_ERROR** Indicates an error condition if interpolation has an illegal value
- **NPP_COEFF_ERROR** Indicates an error condition if coefficient values are invalid
- **NPP_WRONG_INTERSECTION_QUAD_WARNING** Indicates a warning that no operation is performed if the transformed source ROI has no intersection with the destination ROI

7.69.3 Function Documentation

7.69.3.1 NppStatus nppiGetAffineBound (NppiRect *oSrcROI*, double *aBound*[2][2], const double *aCoeffs*[2][3])

Compute bounding-box of transformed image.

The method effectively computes the bounding box (axis aligned rectangle) of the transformed source ROI (see [nppiGetAffineQuad\(\)](#)).

Parameters:

- oSrcROI* The source ROI.
aBound The resulting bounding box.
aCoeffs The affine transform coefficients.

Returns:

Error codes:

- **NPP_SIZE_ERROR** Indicates an error condition if any image dimension has zero or negative value
- **NPP_RECT_ERROR** Indicates an error condition if width or height of the intersection of the oSrcROI and source image is less than or equal to 1
- **NPP_COEFF_ERROR** Indicates an error condition if coefficient values are invalid

7.69.3.2 NppStatus nppiGetAffineQuad (NppiRect *oSrcROI*, double *aQuad*[4][2], const double *aCoeffs*[2][3])

Compute shape of transformed image.

This method computes the quadrilateral in the destination image that the source ROI is transformed into by the affine transformation expressed by the coefficients array (*aCoeffs*).

Parameters:

- oSrcROI* The source ROI.

aQuad The resulting destination quadrangle.

aCoeffs The affine transform coefficients.

Returns:

Error codes:

- [NPP_SIZE_ERROR](#) Indicates an error condition if any image dimension has zero or negative value
- [NPP_RECT_ERROR](#) Indicates an error condition if width or height of the intersection of the oSrcROI and source image is less than or equal to 1
- [NPP_COEFF_ERROR](#) Indicates an error condition if coefficient values are invalid

7.69.3.3 NppStatus nppiGetAffineTransform (NppiRect *oSrcROI*, const double *aQuad*[4][2], double *aCoeffs*[2][3])

Computes affine transform coefficients based on source ROI and destination quadrilateral.

The function computes the coefficients of an affine transformation that maps the given source ROI (axis aligned rectangle with integer coordinates) to a quadrilateral in the destination image.

An affine transform in 2D is fully determined by the mapping of just three vertices. This function's API allows for passing a complete quadrilateral effectively making the problem overdetermined. What this means in practice is, that for certain quadrilaterals it is not possible to find an affine transform that would map all four corners of the source ROI to the four vertices of that quadrilateral.

The function circumvents this problem by only looking at the first three vertices of the destination image quadrilateral to determine the affine transformation's coefficients. If the destination quadrilateral is indeed one that cannot be mapped using an affine transformation the function informs the user of this situation by returning a [NPP_AFFINE_QUAD_INCORRECT_WARNING](#).

Parameters:

oSrcROI The source ROI. This rectangle needs to be at least one pixel wide and high. If either width or height are less than one an [NPP_RECT_ERROR](#) is returned.

aQuad The destination quadrilateral.

aCoeffs The resulting affine transform coefficients.

Returns:

Error codes:

- [NPP_SIZE_ERROR](#) Indicates an error condition if any image dimension has zero or negative value
- [NPP_RECT_ERROR](#) Indicates an error condition if width or height of the intersection of the oSrcROI and source image is less than or equal to 1
- [NPP_COEFF_ERROR](#) Indicates an error condition if coefficient values are invalid
- [NPP_AFFINE_QUAD_INCORRECT_WARNING](#) Indicates a warning when quad does not conform to the transform properties. Fourth vertex is ignored, internally computed coordinates are used instead

7.69.3.4 NppStatus nppiWarpAffine_16u_AC4R (const Npp16u **pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u **pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 16-bit unsigned affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.5 NppStatus nppiWarpAffine_16u_C1R (const Npp16u **pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u **pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 16-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.6 NppStatus nppiWarpAffine_16u_C3R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 16-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.7 NppStatus nppiWarpAffine_16u_C4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 16-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.8 NppStatus nppiWarpAffine_16u_P3R (const Npp16u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 16-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.9 NppStatus nppiWarpAffine_16u_P4R (const Npp16u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 16-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.10 NppStatus nppiWarpAffine_32f_AC4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 32-bit floating-point affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.11 NppStatus nppiWarpAffine_32f_C1R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 32-bit floating-point affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.12 NppStatus nppiWarpAffine_32f_C3R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 32-bit floating-point affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.13 NppStatus nppiWarpAffine_32f_C4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 32-bit floating-point affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.14 NppStatus nppiWarpAffine_32f_P3R (const Npp32f * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 32-bit floating-point affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.15 NppStatus nppiWarpAffine_32f_P4R (const Npp32f * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 32-bit floating-point affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.16 NppStatus nppiWarpAffine_32s_AC4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 32-bit signed affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.17 NppStatus nppiWarpAffine_32s_C1R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 32-bit signed affine warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.18 NppStatus nppiWarpAffine_32s_C3R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 32-bit signed affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.19 NppStatus nppiWarpAffine_32s_C4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 32-bit signed affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.20 NppStatus nppiWarpAffine_32s_P3R (const Npp32s * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 32-bit signed affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.21 NppStatus nppiWarpAffine_32s_P4R (const Npp32s * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 32-bit signed affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.22 NppStatus nppiWarpAffine_64f_AC4R (const Npp64f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp64f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 64-bit floating-point affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.23 NppStatus nppiWarpAffine_64f_C1R (const Npp64f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp64f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 64-bit floating-point affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.24 NppStatus nppiWarpAffine_64f_C3R (const Npp64f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp64f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 64-bit floating-point affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.25 NppStatus nppiWarpAffine_64f_C4R (const Npp64f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp64f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 64-bit floating-point affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.26 NppStatus nppiWarpAffine_64f_P3R (const Npp64f * *aSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp64f * *aDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 64-bit floating-point affine warp.

Parameters:

aSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.27 NppStatus nppiWarpAffine_64f_P4R (const Npp64f * *aSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp64f * *aDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 64-bit floating-point affine warp.

Parameters:

aSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.28 NppStatus nppiWarpAffine_8u_AC4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 8-bit unsigned affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.29 NppStatus nppiWarpAffine_8u_C1R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 8-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.30 NppStatus nppiWarpAffine_8u_C3R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 8-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.31 NppStatus nppiWarpAffine_8u_C4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 8-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.32 NppStatus nppiWarpAffine_8u_P3R (const Npp8u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 8-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.33 NppStatus nppiWarpAffine_8u_P4R (const Npp8u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 8-bit unsigned affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.34 NppStatus nppiWarpAffineBack_16u_AC4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 16-bit unsigned integer backwards affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.35 NppStatus nppiWarpAffineBack_16u_C1R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 16-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.36 NppStatus nppiWarpAffineBack_16u_C3R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 16-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.37 NppStatus nppiWarpAffineBack_16u_C4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 16-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.38 NppStatus nppiWarpAffineBack_16u_P3R (const Npp16u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 16-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.39 NppStatus nppiWarpAffineBack_16u_P4R (const Npp16u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 16-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.40 NppStatus nppiWarpAffineBack_32f_AC4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 32-bit floating-point backwards affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.41 NppStatus nppiWarpAffineBack_32f_C1R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 32-bit floating-point backwards affine warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.42 NppStatus nppiWarpAffineBack_32f_C3R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 32-bit floating-point backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.43 NppStatus nppiWarpAffineBack_32f_C4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 32-bit floating-point backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.44 NppStatus nppiWarpAffineBack_32f_P3R (const Npp32f * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 32-bit floating-point backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.45 NppStatus nppiWarpAffineBack_32f_P4R (const Npp32f * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 32-bit floating-point backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.46 NppStatus nppiWarpAffineBack_32s_AC4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 32-bit signed integer backwards affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.47 NppStatus nppiWarpAffineBack_32s_C1R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 32-bit signed integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.48 NppStatus nppiWarpAffineBack_32s_C3R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 32-bit signed integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.49 NppStatus nppiWarpAffineBack_32s_C4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 32-bit signed integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.50 NppStatus nppiWarpAffineBack_32s_P3R (const Npp32s * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 32-bit signed integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.51 NppStatus nppiWarpAffineBack_32s_P4R (const Npp32s * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 32-bit signed integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.52 NppStatus nppiWarpAffineBack_8u_AC4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 8-bit unsigned integer backwards affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.53 NppStatus nppiWarpAffineBack_8u_C1R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Single-channel 8-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.54 NppStatus nppiWarpAffineBack_8u_C3R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel 8-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.55 NppStatus nppiWarpAffineBack_8u_C4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel 8-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Affine transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.56 NppStatus nppiWarpAffineBack_8u_P3R (const Npp8u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Three-channel planar 8-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.57 NppStatus nppiWarpAffineBack_8u_P4R (const Npp8u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[2][3], int *eInterpolation*)

Four-channel planar 8-bit unsigned integer backwards affine warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Affine transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.58 NppStatus nppiWarpAffineQuad_16u_AC4R (const Npp16u **pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u **pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 16-bit unsigned integer quad-based affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.59 NppStatus nppiWarpAffineQuad_16u_C1R (const Npp16u **pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u **pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Single-channel 16-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.60 NppStatus nppiWarpAffineQuad_16u_C3R (const Npp16u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp16u * pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel 16-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.61 NppStatus nppiWarpAffineQuad_16u_C4R (const Npp16u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp16u * pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 16-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.62 NppStatus nppiWarpAffineQuad_16u_P3R (const Npp16u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel planar 16-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.63 NppStatus nppiWarpAffineQuad_16u_P4R (const Npp16u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel planar 16-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.64 NppStatus nppiWarpAffineQuad_32f_AC4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 32-bit floating-point quad-based affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.65 NppStatus nppiWarpAffineQuad_32f_C1R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Single-channel 32-bit floating-point quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.66 NppStatus nppiWarpAffineQuad_32f_C3R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel 32-bit floating-point quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.67 NppStatus nppiWarpAffineQuad_32f_C4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 32-bit floating-point quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.68 NppStatus nppiWarpAffineQuad_32f_P3R (const Npp32f * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel planar 32-bit floating-point quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.69 NppStatus nppiWarpAffineQuad_32f_P4R (const Npp32f * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel planar 32-bit floating-point quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.70 NppStatus nppiWarpAffineQuad_32s_AC4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 32-bit signed integer quad-based affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.71 NppStatus nppiWarpAffineQuad_32s_C1R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Single-channel 32-bit signed integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.72 NppStatus nppiWarpAffineQuad_32s_C3R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel 32-bit signed integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.73 NppStatus nppiWarpAffineQuad_32s_C4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 32-bit signed integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.74 NppStatus nppiWarpAffineQuad_32s_P3R (const Npp32s * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel planar 32-bit signed integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.75 NppStatus nppiWarpAffineQuad_32s_P4R (const Npp32s * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel planar 32-bit signed integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.76 NppStatus nppiWarpAffineQuad_8u_AC4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 8-bit unsigned integer quad-based affine warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.77 NppStatus nppiWarpAffineQuad_8u_C1R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Single-channel 32-bit floating-point quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.78 NppStatus nppiWarpAffineQuad_8u_C3R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel 8-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.79 NppStatus nppiWarpAffineQuad_8u_C4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 8-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.80 NppStatus nppiWarpAffineQuad_8u_P3R (const Npp8u * pSrc[3], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp8u * pDst[3], int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel planar 8-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.69.3.81 NppStatus nppiWarpAffineQuad_8u_P4R (const Npp8u * pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp8u * pDst[4], int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel planar 8-bit unsigned integer quad-based affine warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Affine Transform Error Codes](#)

7.70 Perspective Transform

Utility Functions

- `NppStatus nppiGetPerspectiveTransform (NppiRect oSrcROI, const double quad[4][2], double aCoeffs[3][3])`

Calculates perspective transform coefficients given source rectangular ROI and its destination quadrangle projection.

- `NppStatus nppiGetPerspectiveQuad (NppiRect oSrcROI, double quad[4][2], const double aCoeffs[3][3])`

Calculates perspective transform projection of given source rectangular ROI.

- `NppStatus nppiGetPerspectiveBound (NppiRect oSrcROI, double bound[2][2], const double aCoeffs[3][3])`

Calculates bounding box of the perspective transform projection of the given source rectangular ROI.

Perspective Transform

Transforms (warps) an image based on a perspective transform.

The perspective transform is given as a 3×3 matrix C. A pixel location (x, y) in the source image is mapped to the location (x', y') in the destination image. The destination image coordinates are computed as follows:

$$x' = \frac{c_{00} * x + c_{01} * y + c_{02}}{c_{20} * x + c_{21} * y + c_{22}} \quad y' = \frac{c_{10} * x + c_{11} * y + c_{12}}{c_{20} * x + c_{21} * y + c_{22}}$$

$$C = \begin{bmatrix} c_{00} & c_{01} & c_{02} \\ c_{10} & c_{11} & c_{12} \\ c_{20} & c_{21} & c_{22} \end{bmatrix}$$

- `NppStatus nppiWarpPerspective_8u_C1R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Single-channel 8-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_8u_C3R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Three-channel 8-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_8u_C4R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Four-channel 8-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_8u_AC4R (const Npp8u *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Four-channel 8-bit unsigned integer perspective warp, ignoring alpha channel.

- `NppStatus nppiWarpPerspective_8u_P3R` (const `Npp8u *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Three-channel planar 8-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_8u_P4R` (const `Npp8u *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp8u *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Four-channel planar 8-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_16u_C1R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Single-channel 16-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_16u_C3R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Three-channel 16-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_16u_C4R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Four-channel 16-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_16u_AC4R` (const `Npp16u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Four-channel 16-bit unsigned integer perspective warp, ignoring alpha channel.

- `NppStatus nppiWarpPerspective_16u_P3R` (const `Npp16u *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Three-channel planar 16-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_16u_P4R` (const `Npp16u *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp16u *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Four-channel planar 16-bit unsigned integer perspective warp.

- `NppStatus nppiWarpPerspective_32s_C1R` (const `Npp32s *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Single-channel 32-bit signed integer perspective warp.

- `NppStatus nppiWarpPerspective_32s_C3R` (const `Npp32s *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Three-channel 32-bit signed integer perspective warp.

- `NppStatus nppiWarpPerspective_32s_C4R (const Npp32s *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Four-channel 32-bit signed integer perspective warp.

- `NppStatus nppiWarpPerspective_32s_AC4R (const Npp32s *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Four-channel 32-bit signed integer perspective warp, ignoring alpha channel.

- `NppStatus nppiWarpPerspective_32s_P3R (const Npp32s *pSrc[3], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst[3], int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Three-channel planar 32-bit signed integer perspective warp.

- `NppStatus nppiWarpPerspective_32s_P4R (const Npp32s *pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s *pDst[4], int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Four-channel planar 32-bit signed integer perspective warp.

- `NppStatus nppiWarpPerspective_32f_C1R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Single-channel 32-bit floating-point perspective warp.

- `NppStatus nppiWarpPerspective_32f_C3R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Three-channel 32-bit floating-point perspective warp.

- `NppStatus nppiWarpPerspective_32f_C4R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Four-channel 32-bit floating-point perspective warp.

- `NppStatus nppiWarpPerspective_32f_AC4R (const Npp32f *pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f *pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Four-channel 32-bit floating-point perspective warp, ignoring alpha channel.

- `NppStatus nppiWarpPerspective_32f_P3R (const Npp32f *pSrc[3], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f *pDst[3], int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Three-channel planar 32-bit floating-point perspective warp.

- `NppStatus nppiWarpPerspective_32f_P4R (const Npp32f *pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f *pDst[4], int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)`

Four-channel planar 32-bit floating-point perspective warp.

Backwards Perspective Transform

Transforms (warps) an image based on a perspective transform.

The perspective transform is given as a 3×3 matrix C . A pixel location (x, y) in the source image is mapped to the location (x', y') in the destination image. The destination image coordinates fulfill the following properties:

$$x = \frac{c_{00} * x' + c_{01} * y' + c_{02}}{c_{20} * x' + c_{21} * y' + c_{22}} \quad y = \frac{c_{10} * x' + c_{11} * y' + c_{12}}{c_{20} * x' + c_{21} * y' + c_{22}}$$

$$C = \begin{bmatrix} c_{00} & c_{01} & c_{02} \\ c_{10} & c_{11} & c_{12} \\ c_{20} & c_{21} & c_{22} \end{bmatrix}$$

In other words, given matrix C the source image's shape is transferred to the destination image using the inverse matrix C^{-1} :

$$M = C^{-1} = \begin{bmatrix} m_{00} & m_{01} & m_{02} \\ m_{10} & m_{11} & m_{12} \\ m_{20} & m_{21} & m_{22} \end{bmatrix} \quad x' = \frac{c_{00} * x + c_{01} * y + c_{02}}{c_{20} * x + c_{21} * y + c_{22}} \quad y' = \frac{c_{10} * x + c_{11} * y + c_{12}}{c_{20} * x + c_{21} * y + c_{22}}$$

- **NppStatus nppiWarpPerspectiveBack_8u_C1R** (const **Npp8u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp8u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Single-channel 8-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_8u_C3R** (const **Npp8u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp8u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Three-channel 8-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_8u_C4R** (const **Npp8u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp8u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 8-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_8u_AC4R** (const **Npp8u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp8u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 8-bit unsigned integer backwards perspective warp, ignoring alpha channel.

- **NppStatus nppiWarpPerspectiveBack_8u_P3R** (const **Npp8u** *pSrc[3], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp8u** *pDst[3], int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Three-channel planar 8-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_8u_P4R** (const **Npp8u** *pSrc[4], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp8u** *pDst[4], int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel planar 8-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_16u_C1R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Single-channel 16-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_16u_C3R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Three-channel 16-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_16u_C4R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 16-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_16u_AC4R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 16-bit unsigned integer backwards perspective warp, ignoring alpha channel.

- **NppStatus nppiWarpPerspectiveBack_16u_P3R** (const **Npp16u** *pSrc[3], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp16u** *pDst[3], int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel planar 16-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_16u_P4R** (const **Npp16u** *pSrc[4], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp16u** *pDst[4], int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel planar 16-bit unsigned integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_32s_C1R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Single-channel 32-bit signed integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_32s_C3R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Three-channel 32-bit signed integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_32s_C4R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 32-bit signed integer backwards perspective warp.

- **NppStatus nppiWarpPerspectiveBack_32s_AC4R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 32-bit signed integer backwards perspective warp, ignoring alpha channel.

- **NppStatus nppiWarpPerspectiveBack_32s_P3R** (const **Npp32s** *pSrc[3], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, **Npp32s** *pDst[3], int nDstStep, **NppiRect** oDstROI, const double aCoeffs[3][3], int eInterpolation)

Three-channel planar 32-bit signed integer backwards perspective warp.

- `NppStatus nppiWarpPerspectiveBack_32s_P4R` (const `Npp32s *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32s *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Four-channel planar 32-bit signed integer backwards perspective warp.

- `NppStatus nppiWarpPerspectiveBack_32f_C1R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Single-channel 32-bit floating-point backwards perspective warp.

- `NppStatus nppiWarpPerspectiveBack_32f_C3R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Three-channel 32-bit floating-point backwards perspective warp.

- `NppStatus nppiWarpPerspectiveBack_32f_C4R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Four-channel 32-bit floating-point backwards perspective warp.

- `NppStatus nppiWarpPerspectiveBack_32f_AC4R` (const `Npp32f *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Four-channel 32-bit floating-point backwards perspective warp, ignoring alpha channel.

- `NppStatus nppiWarpPerspectiveBack_32f_P3R` (const `Npp32f *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Three-channel planar 32-bit floating-point backwards perspective warp.

- `NppStatus nppiWarpPerspectiveBack_32f_P4R` (const `Npp32f *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, `Npp32f *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aCoeffs[3][3]`, int `eInterpolation`)

Four-channel planar 32-bit floating-point backwards perspective warp.

Quad-Based Perspective Transform

Transforms (warps) an image based on an perspective transform.

The perspective transform is computed such that it maps a quadrilateral in source image space to a quadrilateral in destination image space.

- `NppStatus nppiWarpPerspectiveQuad_8u_C1R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, const double `aSrcQuad[4][2]`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aDstQuad[4][2]`, int `eInterpolation`)

Single-channel 8-bit unsigned integer quad-based perspective warp.

- `NppStatus nppiWarpPerspectiveQuad_8u_C3R` (const `Npp8u *pSrc`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, const double `aSrcQuad[4][2]`, `Npp8u *pDst`, int `nDstStep`, `NppiRect oDstROI`, const double `aDstQuad[4][2]`, int `eInterpolation`)

Three-channel 8-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_8u_C4R** (const **Npp8u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp8u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 8-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_8u_AC4R** (const **Npp8u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp8u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 8-bit unsigned integer quad-based perspective warp, ignoring alpha channel.

- **NppStatus nppiWarpPerspectiveQuad_8u_P3R** (const **Npp8u** *pSrc[3], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp8u** *pDst[3], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel planar 8-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_8u_P4R** (const **Npp8u** *pSrc[4], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp8u** *pDst[4], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel planar 8-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_16u_C1R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Single-channel 16-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_16u_C3R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel 16-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_16u_C4R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 16-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_16u_AC4R** (const **Npp16u** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 16-bit unsigned integer quad-based perspective warp, ignoring alpha channel.

- **NppStatus nppiWarpPerspectiveQuad_16u_P3R** (const **Npp16u** *pSrc[3], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst[3], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel planar 16-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_16u_P4R** (const **Npp16u** *pSrc[4], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp16u** *pDst[4], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel planar 16-bit unsigned integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32s_C1R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Single-channel 32-bit signed integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32s_C3R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel 32-bit signed integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32s_C4R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 32-bit signed integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32s_AC4R** (const **Npp32s** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32s** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 32-bit signed integer quad-based perspective warp, ignoring alpha channel.

- **NppStatus nppiWarpPerspectiveQuad_32s_P3R** (const **Npp32s** *pSrc[3], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32s** *pDst[3], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel planar 32-bit signed integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32s_P4R** (const **Npp32s** *pSrc[4], **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32s** *pDst[4], int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel planar 32-bit signed integer quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32f_C1R** (const **Npp32f** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32f** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Single-channel 32-bit floating-point quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32f_C3R** (const **Npp32f** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32f** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel 32-bit floating-point quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32f_C4R** (const **Npp32f** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32f** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 32-bit floating-point quad-based perspective warp.

- **NppStatus nppiWarpPerspectiveQuad_32f_AC4R** (const **Npp32f** *pSrc, **NppiSize** oSrcSize, int nSrcStep, **NppiRect** oSrcROI, const double aSrcQuad[4][2], **Npp32f** *pDst, int nDstStep, **NppiRect** oDstROI, const double aDstQuad[4][2], int eInterpolation)

Four-channel 32-bit floating-point quad-based perspective warp, ignoring alpha channel.

- `NppStatus nppiWarpPerspectiveQuad_32f_P3R` (const `Npp32f *pSrc[3]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, const double `aSrcQuad[4][2]`, `Npp32f *pDst[3]`, int `nDstStep`, `NppiRect oDstROI`, const double `aDstQuad[4][2]`, int `eInterpolation`)

Three-channel planar 32-bit floating-point quad-based perspective warp.

- `NppStatus nppiWarpPerspectiveQuad_32f_P4R` (const `Npp32f *pSrc[4]`, `NppiSize oSrcSize`, int `nSrcStep`, `NppiRect oSrcROI`, const double `aSrcQuad[4][2]`, `Npp32f *pDst[4]`, int `nDstStep`, `NppiRect oDstROI`, const double `aDstQuad[4][2]`, int `eInterpolation`)

Four-channel planar 32-bit floating-point quad-based perspective warp.

7.70.1 Detailed Description

7.70.2 Perspective Transform Error Codes

- `NPP_RECT_ERROR` Indicates an error condition if width or height of the intersection of the `oSrcROI` and source image is less than or equal to 1
- `NPP_WRONG_INTERSECTION_ROI_ERROR` Indicates an error condition if `oSrcROI` has no intersection with the source image
- `NPP_INTERPOLATION_ERROR` Indicates an error condition if interpolation has an illegal value
- `NPP_COEFF_ERROR` Indicates an error condition if coefficient values are invalid
- `NPP_WRONG_INTERSECTION_QUAD_WARNING` Indicates a warning that no operation is performed if the transformed source ROI has no intersection with the destination ROI

7.70.3 Function Documentation

7.70.3.1 `NppStatus nppiGetPerspectiveBound (NppiRect oSrcROI, double bound[2][2], const double aCoeffs[3][3])`

Calculates bounding box of the perspective transform projection of the given source rectangular ROI.

Parameters:

`oSrcROI` Source ROI

`bound` Bounding box of the transformed source ROI

`aCoeffs` Perspective transform coefficients

Returns:

Error codes:

- `NPP_SIZE_ERROR` Indicates an error condition if any image dimension has zero or negative value
- `NPP_RECT_ERROR` Indicates an error condition if width or height of the intersection of the `oSrcROI` and source image is less than or equal to 1
- `NPP_COEFF_ERROR` Indicates an error condition if coefficient values are invalid

7.70.3.2 NppStatus nppiGetPerspectiveQuad (NppiRect *oSrcROI*, double *quad*[4][2], const double *aCoeffs*[3][3])

Calculates perspective transform projection of given source rectangular ROI.

Parameters:

oSrcROI Source ROI
quad Destination quadrangle
aCoeffs Perspective transform coefficients

Returns:

Error codes:

- [NPP_SIZE_ERROR](#) Indicates an error condition if any image dimension has zero or negative value
- [NPP_RECT_ERROR](#) Indicates an error condition if width or height of the intersection of the oSrcROI and source image is less than or equal to 1
- [NPP_COEFF_ERROR](#) Indicates an error condition if coefficient values are invalid

7.70.3.3 NppStatus nppiGetPerspectiveTransform (NppiRect *oSrcROI*, const double *quad*[4][2], const double *aCoeffs*[3][3])

Calculates perspective transform coefficients given source rectangular ROI and its destination quadrangle projection.

Parameters:

oSrcROI Source ROI
quad Destination quadrangle
aCoeffs Perspective transform coefficients

Returns:

Error codes:

- [NPP_SIZE_ERROR](#) Indicates an error condition if any image dimension has zero or negative value
- [NPP_RECT_ERROR](#) Indicates an error condition if width or height of the intersection of the oSrcROI and source image is less than or equal to 1
- [NPP_COEFF_ERROR](#) Indicates an error condition if coefficient values are invalid

7.70.3.4 NppStatus nppiWarpPerspective_16u_AC4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 16-bit unsigned integer perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.5 NppStatus nppiWarpPerspective_16u_C1R (const Npp16u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u * pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Single-channel 16-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.6 NppStatus nppiWarpPerspective_16u_C3R (const Npp16u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u * pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Three-channel 16-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.7 NppStatus nppiWarpPerspective_16u_C4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 16-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.8 NppStatus nppiWarpPerspective_16u_P3R (const Npp16u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel planar 16-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.9 NppStatus nppiWarpPerspective_16u_P4R (const Npp16u * pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp16u * pDst[4], int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel planar 16-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.10 NppStatus nppiWarpPerspective_32f_AC4R (const Npp32f * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f * pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 32-bit floating-point perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.11 NppStatus nppiWarpPerspective_32f_C1R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Single-channel 32-bit floating-point perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.12 NppStatus nppiWarpPerspective_32f_C3R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel 32-bit floating-point perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.13 NppStatus nppiWarpPerspective_32f_C4R (const Npp32f * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f * pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 32-bit floating-point perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.14 NppStatus nppiWarpPerspective_32f_P3R (const Npp32f * pSrc[3], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f * pDst[3], int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Three-channel planar 32-bit floating-point perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.15 NppStatus nppiWarpPerspective_32f_P4R (const Npp32f * pSrc[4], NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32f * pDst[4], int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel planar 32-bit floating-point perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.16 NppStatus nppiWarpPerspective_32s_AC4R (const Npp32s * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s * pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Four-channel 32-bit signed integer perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.17 NppStatus nppiWarpPerspective_32s_C1R (const Npp32s * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s * pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Single-channel 32-bit signed integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.18 NppStatus nppiWarpPerspective_32s_C3R (const Npp32s * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, Npp32s * pDst, int nDstStep, NppiRect oDstROI, const double aCoeffs[3][3], int eInterpolation)

Three-channel 32-bit signed integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.19 NppStatus nppiWarpPerspective_32s_C4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 32-bit signed integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.20 NppStatus nppiWarpPerspective_32s_P3R (const Npp32s * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel planar 32-bit signed integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.21 NppStatus nppiWarpPerspective_32s_P4R (const Npp32s * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel planar 32-bit signed integer perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.22 NppStatus nppiWarpPerspective_8u_AC4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 8-bit unsigned integer perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.23 NppStatus nppiWarpPerspective_8u_C1R (const Npp8u **pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u **pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Single-channel 8-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.24 NppStatus nppiWarpPerspective_8u_C3R (const Npp8u **pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u **pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel 8-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.25 NppStatus nppiWarpPerspective_8u_C4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 8-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.26 NppStatus nppiWarpPerspective_8u_P3R (const Npp8u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel planar 8-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.27 NppStatus nppiWarpPerspective_8u_P4R (const Npp8u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel planar 8-bit unsigned integer perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.28 NppStatus nppiWarpPerspectiveBack_16u_AC4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 16-bit unsigned integer backwards perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.29 NppStatus nppiWarpPerspectiveBack_16u_C1R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Single-channel 16-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.30 NppStatus nppiWarpPerspectiveBack_16u_C3R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel 16-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.31 NppStatus nppiWarpPerspectiveBack_16u_C4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 16-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.32 NppStatus nppiWarpPerspectiveBack_16u_P3R (const Npp16u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel planar 16-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.33 NppStatus nppiWarpPerspectiveBack_16u_P4R (const Npp16u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp16u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel planar 16-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.34 NppStatus nppiWarpPerspectiveBack_32f_AC4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 32-bit floating-point backwards perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.35 NppStatus nppiWarpPerspectiveBack_32f_C1R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Single-channel 32-bit floating-point backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.36 NppStatus nppiWarpPerspectiveBack_32f_C3R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel 32-bit floating-point backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.37 NppStatus nppiWarpPerspectiveBack_32f_C4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 32-bit floating-point backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.38 NppStatus nppiWarpPerspectiveBack_32f_P3R (const Npp32f * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel planar 32-bit floating-point backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.39 NppStatus nppiWarpPerspectiveBack_32f_P4R (const Npp32f * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32f * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel planar 32-bit floating-point backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.40 NppStatus nppiWarpPerspectiveBack_32s_AC4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 32-bit signed integer backwards perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.41 NppStatus nppiWarpPerspectiveBack_32s_C1R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Single-channel 32-bit signed integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.42 NppStatus nppiWarpPerspectiveBack_32s_C3R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel 32-bit signed integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.43 NppStatus nppiWarpPerspectiveBack_32s_C4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 32-bit signed integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.44 NppStatus nppiWarpPerspectiveBack_32s_P3R (const Npp32s * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel planar 32-bit signed integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.45 NppStatus nppiWarpPerspectiveBack_32s_P4R (const Npp32s * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp32s * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel planar 32-bit signed integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.46 NppStatus nppiWarpPerspectiveBack_8u_AC4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 8-bit unsigned integer backwards perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aCoeffs Perspective transform coefficients
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.47 NppStatus nppiWarpPerspectiveBack_8u_C1R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Single-channel 8-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.48 NppStatus nppiWarpPerspectiveBack_8u_C3R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel 8-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.49 NppStatus nppiWarpPerspectiveBack_8u_C4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel 8-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.50 NppStatus nppiWarpPerspectiveBack_8u_P3R (const Npp8u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Three-channel planar 8-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.51 NppStatus nppiWarpPerspectiveBack_8u_P4R (const Npp8u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, Npp8u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aCoeffs*[3][3], int *eInterpolation*)

Four-channel planar 8-bit unsigned integer backwards perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aCoeffs Perspective transform coefficients

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.52 NppStatus nppiWarpPerspectiveQuad_16u_AC4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 16-bit unsigned integer quad-based perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

aSrcQuad Source quad.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aDstQuad Destination quad.

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.53 NppStatus nppiWarpPerspectiveQuad_16u_C1R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Single-channel 16-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.54 NppStatus nppiWarpPerspectiveQuad_16u_C3R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel 16-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.55 NppStatus nppiWarpPerspectiveQuad_16u_C4R (const Npp16u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 16-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.56 NppStatus nppiWarpPerspectiveQuad_16u_P3R (const Npp16u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel planar 16-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.57 NppStatus nppiWarpPerspectiveQuad_16u_P4R (const Npp16u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp16u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel planar 16-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.58 NppStatus nppiWarpPerspectiveQuad_32f_AC4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 32-bit floating-point quad-based perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.59 NppStatus nppiWarpPerspectiveQuad_32f_C1R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Single-channel 32-bit floating-point quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.60 NppStatus nppiWarpPerspectiveQuad_32f_C3R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel 32-bit floating-point quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.61 NppStatus nppiWarpPerspectiveQuad_32f_C4R (const Npp32f * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 32-bit floating-point quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.62 NppStatus nppiWarpPerspectiveQuad_32f_P3R (const Npp32f * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel planar 32-bit floating-point quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.63 NppStatus nppiWarpPerspectiveQuad_32f_P4R (const Npp32f * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32f * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel planar 32-bit floating-point quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.64 NppStatus nppiWarpPerspectiveQuad_32s_AC4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 32-bit signed integer quad-based perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.65 NppStatus nppiWarpPerspectiveQuad_32s_C1R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Single-channel 32-bit signed integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.66 NppStatus nppiWarpPerspectiveQuad_32s_C3R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel 32-bit signed integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.67 NppStatus nppiWarpPerspectiveQuad_32s_C4R (const Npp32s * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 32-bit signed integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.68 NppStatus nppiWarpPerspectiveQuad_32s_P3R (const Npp32s * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel planar 32-bit signed integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.69 NppStatus nppiWarpPerspectiveQuad_32s_P4R (const Npp32s * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp32s * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel planar 32-bit signed integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.70 NppStatus nppiWarpPerspectiveQuad_8u_AC4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 8-bit unsigned integer quad-based perspective warp, ignoring alpha channel.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.71 NppStatus nppiWarpPerspectiveQuad_8u_C1R (const Npp8u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp8u * pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)

Single-channel 8-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.72 NppStatus nppiWarpPerspectiveQuad_8u_C3R (const Npp8u * pSrc, NppiSize oSrcSize, int nSrcStep, NppiRect oSrcROI, const double aSrcQuad[4][2], Npp8u * pDst, int nDstStep, NppiRect oDstROI, const double aDstQuad[4][2], int eInterpolation)

Three-channel 8-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.73 NppStatus nppiWarpPerspectiveQuad_8u_C4R (const Npp8u * *pSrc*, NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp8u * *pDst*, int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel 8-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.74 NppStatus nppiWarpPerspectiveQuad_8u_P3R (const Npp8u * *pSrc*[3], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp8u * *pDst*[3], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Three-channel planar 8-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.
oSrcSize Size of source image in pixels
nSrcStep Source-Image Line Step.
oSrcROI Source ROI
aSrcQuad Source quad.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oDstROI Destination ROI
aDstQuad Destination quad.
eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.70.3.75 NppStatus nppiWarpPerspectiveQuad_8u_P4R (const Npp8u * *pSrc*[4], NppiSize *oSrcSize*, int *nSrcStep*, NppiRect *oSrcROI*, const double *aSrcQuad*[4][2], Npp8u * *pDst*[4], int *nDstStep*, NppiRect *oDstROI*, const double *aDstQuad*[4][2], int *eInterpolation*)

Four-channel planar 8-bit unsigned integer quad-based perspective warp.

Parameters:

pSrc Source-Image Pointer.

oSrcSize Size of source image in pixels

nSrcStep Source-Image Line Step.

oSrcROI Source ROI

aSrcQuad Source quad.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oDstROI Destination ROI

aDstQuad Destination quad.

eInterpolation Interpolation mode: can be NPPI_INTER_NN, NPPI_INTER_LINEAR or NPPI_INTER_CUBIC

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), [Perspective Transform Error Codes](#)

7.71 Linear Transforms

Linear image transformations.

Modules

- [Fourier Transforms](#)

7.71.1 Detailed Description

Linear image transformations.

7.72 Fourier Transforms

Functions

- **NppStatus nppiMagnitude_32fc32f_C1R** (const **Npp32fc** **pSrc*, int *nSrcStep*, **Npp32f** **pDst*, int *nDstStep*, **NppiSize** *oSizeROI*)
32-bit floating point complex to 32-bit floating point magnitude.
- **NppStatus nppiMagnitudeSqr_32fc32f_C1R** (const **Npp32fc** **pSrc*, int *nSrcStep*, **Npp32f** **pDst*, int *nDstStep*, **NppiSize** *oSizeROI*)
32-bit floating point complex to 32-bit floating point squared magnitude.

7.72.1 Function Documentation

7.72.1.1 NppStatus nppiMagnitude_32fc32f_C1R (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit floating point complex to 32-bit floating point magnitude.

Converts complex-number pixel image to single channel image computing the result pixels as the magnitude of the complex values.

Parameters:

- pSrc* Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.72.1.2 NppStatus nppiMagnitudeSqr_32fc32f_C1R (const Npp32fc * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

32-bit floating point complex to 32-bit floating point squared magnitude.

Converts complex-number pixel image to single channel image computing the result pixels as the squared magnitude of the complex values.

The squared magnitude is an intermediate result of magnitude computation and can thus be computed faster than actual magnitude. If magnitudes are required for sorting/comparing only, using this function instead of nppiMagnitude_32fc32f_C1R can be a worthwhile performance optimization.

Parameters:

- pSrc* Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.73 Morphological Operations

Morphological image operations.

Modules

- [Dilation And Erosion](#)

7.73.1 Detailed Description

Morphological image operations.

7.74 Dilation And Erosion

Functions

- `NppStatus nppiDilate_8u_C1R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oSizeROI, const Npp8u *pMask, NppiSize oMaskSize, NppiPoint oAnchor)`
8-bit unsigned image dilation.
- `NppStatus nppiDilate_8u_C4R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp8u *pMask, NppiSize oMaskSize, NppiPoint oAnchor)`
4 channel 8-bit unsigned image dilation.
- `NppStatus nppiErode_8u_C1R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oSizeROI, const Npp8u *pMask, NppiSize oMaskSize, NppiPoint oAnchor)`
8-bit unsigned image erosion.
- `NppStatus nppiErode_8u_C4R (const Npp8u *pSrc, Npp32s nSrcStep, Npp8u *pDst, Npp32s nDstStep, NppiSize oSizeROI, const Npp8u *pMask, NppiSize oMaskSize, NppiPoint oAnchor)`
4 channel 8-bit unsigned image erosion.

7.74.1 Function Documentation

7.74.1.1 `NppStatus nppiDilate_8u_C1R (const Npp8u * pSrc, Npp32s nSrcStep, Npp8u * pDst, Npp32s nDstStep, NppiSize oSizeROI, const Npp8u * pMask, NppiSize oMaskSize, NppiPoint oAnchor)`

8-bit unsigned image dilation.

Dilation computes the output pixel as the maximum pixel value of the pixels under the mask. Pixels who's corresponding mask values are zero to not participate in the maximum search.

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

`pMask` Pointer to the start address of the mask array

`oMaskSize` Width and Height mask array.

`oAnchor` X and Y offsets of the mask origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.74.1.2 NppStatus nppiDilate_8u_C4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u **pMask*, NppiSize *oMaskSize*, NppiPoint *oAnchor*)

4 channel 8-bit unsigned image dilation.

Dilation computes the output pixel as the maximum pixel value of the pixels under the mask. Pixels who's corresponding mask values are zero to not participate in the maximum search.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the start address of the mask array

oMaskSize Width and Height mask array.

oAnchor X and Y offsets of the mask origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.74.1.3 NppStatus nppiErode_8u_C1R (const Npp8u **pSrc*, Npp32s *nSrcStep*, Npp8u **pDst*, Npp32s *nDstStep*, NppiSize *oSizeROI*, const Npp8u **pMask*, NppiSize *oMaskSize*, NppiPoint *oAnchor*)

8-bit unsigned image erosion.

Erosion computes the output pixel as the minimum pixel value of the pixels under the mask. Pixels who's corresponding mask values are zero to not participate in the minimum search.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the start address of the mask array

oMaskSize Width and Height mask array.

oAnchor X and Y offsets of the mask origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.74.1.4 NppStatus nppiErode_8u_C4R (const Npp8u * *pSrc*, Npp32s *nSrcStep*, Npp8u * *pDst*, Npp32s *nDstStep*, NppiSize *oSizeROI*, const Npp8u * *pMask*, NppiSize *oMaskSize*, *NppiPoint oAnchor*)

4 channel 8-bit unsigned image erosion.

Erosion computes the output pixel as the minimum pixel value of the pixels under the mask. Pixels who's corresponding mask values are zero to not participate in the maximum search.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMask Pointer to the start address of the mask array

oMaskSize Width and Height mask array.

oAnchor X and Y offsets of the mask origin frame of reference w.r.t the source pixel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.75 Statistics Functions

Routines computing statistical image information.

Modules

- [Sum](#)
- [Minimum](#)
- [Maximum](#)
- [Minimum_Maximum](#)
- [Mean](#)
- [Mean And Standard Deviation](#)
- [Infinity Norm](#)
- [L1 Norm](#)
- [L2 Norm](#)
- [Norm Diff](#)
- [Integral and Rectangular Standard Deviation](#)
- [Histogram](#)

7.75.1 Detailed Description

Routines computing statistical image information.

7.76 Sum

Sum

Sum functions compute the sum of all the pixel values in an image.

If the image contains multiple channels, the sums will be calculated for each channel separately. Functions also require scratch buffer during the computation. For details, please refer [Scratch Buffer and Host Pointer](#). The nppiSumGetBuffer_X_X functions compute the size of the scratch buffer. It is the user's responsibility to allocate the sufficient GPU memory based on the size and pass the memory pointer to the sum functions.

- [NppStatus nppiSumGetBufferHostSize_8u_C1R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_8u_C1R.
- [NppStatus nppiSumGetBufferHostSize_8u64s_C1R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_8u64s_C1R.
- [NppStatus nppiSumGetBufferHostSize_16u_C1R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_16u_C1R.
- [NppStatus nppiSumGetBufferHostSize_16s_C1R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_16s_C1R.
- [NppStatus nppiSumGetBufferHostSize_32f_C1R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_32f_C1R.
- [NppStatus nppiSumGetBufferHostSize_8u_C3R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_8u_C3R.
- [NppStatus nppiSumGetBufferHostSize_16u_C3R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_16u_C3R.
- [NppStatus nppiSumGetBufferHostSize_16s_C3R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_16s_C3R.
- [NppStatus nppiSumGetBufferHostSize_32f_C3R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_32f_C3R.
- [NppStatus nppiSumGetBufferHostSize_8u_AC4R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_8u_AC4R.
- [NppStatus nppiSumGetBufferHostSize_16u_AC4R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_16u_AC4R.
- [NppStatus nppiSumGetBufferHostSize_16s_AC4R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_16s_AC4R.
- [NppStatus nppiSumGetBufferHostSize_32f_AC4R \(NppiSize oSizeROI, int *hpBufferSize\)](#)
Device scratch buffer size (in bytes) for nppiSum_32f_AC4R.
- [NppStatus nppiSumGetBufferHostSize_8u64s_C4R \(NppiSize oSizeROI, int *hpBufferSize\)](#)

Device scratch buffer size (in bytes) for nppiSum_8u64s_C4R.

- **NppStatus nppiSumGetBufferSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiSum_8u_C4R.
- **NppStatus nppiSumGetBufferSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiSum_16u_C4R.
- **NppStatus nppiSumGetBufferSize_16s_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiSum_16s_C4R.
- **NppStatus nppiSumGetBufferSize_32f_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiSum_32f_C4R.
- **NppStatus nppiSum_8u_C1R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f *pSum)**
1-channel 8-bit unsigned char image sum with 64-bit double precision result.
- **NppStatus nppiSum_8u64s_C1R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64s *pSum)**
1-channel 8-bit unsigned char image sum with 64-bit long long result.
- **NppStatus nppiSum_16u_C1R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f *pSum)**
1-channel 16-bit unsigned short image sum with 64-bit double precision result.
- **NppStatus nppiSum_16s_C1R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f *pSum)**
1-channel 16-bit signed short image sum with 64-bit double precision result.
- **NppStatus nppiSum_32f_C1R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f *pSum)**
1-channel 32-bit floating point image sum with 64-bit double precision result.
- **NppStatus nppiSum_8u_C3R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f aSum[3])**
3-channel 8-bit unsigned char image sum with 64-bit double precision result.
- **NppStatus nppiSum_16u_C3R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f aSum[3])**
3-channel 16-bit unsigned short image sum with 64-bit double precision result.
- **NppStatus nppiSum_16s_C3R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f aSum[3])**
3-channel 16-bit signed short image sum with 64-bit double precision result.
- **NppStatus nppiSum_32f_C3R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f aSum[3])**
3-channel 32-bit floating point image sum with 64-bit double precision result.

- **NppStatus nppiSum_8u_AC4R** (const **Npp8u** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64f** *aSum*[3])
4-channel 8-bit unsigned char image sum with 64-bit double precision result.
- **NppStatus nppiSum_16u_AC4R** (const **Npp16u** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64f** *aSum*[3])
4-channel 16-bit unsigned short image sum with 64-bit double precision result.
- **NppStatus nppiSum_16s_AC4R** (const **Npp16s** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64f** *aSum*[3])
4-channel 16-bit signed short image sum with 64-bit double precision result.
- **NppStatus nppiSum_32f_AC4R** (const **Npp32f** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64f** *aSum*[3])
4-channel 32-bit floating point image sum with 64-bit double precision result.
- **NppStatus nppiSum_8u_C4R** (const **Npp8u** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64f** *aSum*[4])
4-channel 8-bit unsigned char image sum with 64-bit double precision result.
- **NppStatus nppiSum_8u64s_C4R** (const **Npp8u** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64s** *aSum*[4])
4-channel 8-bit unsigned char image sum with 64-bit long long result.
- **NppStatus nppiSum_16u_C4R** (const **Npp16u** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64f** *aSum*[4])
4-channel 16-bit unsigned short image sum with 64-bit double precision result.
- **NppStatus nppiSum_16s_C4R** (const **Npp16s** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64f** *aSum*[4])
4-channel 16-bit signed short image sum with 64-bit double precision result.
- **NppStatus nppiSum_32f_C4R** (const **Npp32f** **pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** **pDeviceBuffer*, **Npp64f** *aSum*[4])
4-channel 32-bit floating point image sum with 64-bit double precision result.

7.76.1 Function Documentation

7.76.1.1 NppStatus nppiSum_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, **Npp8u** * *pDeviceBuffer*, **Npp64f** *aSum*[3])

4-channel 16-bit signed short image sum with 64-bit double precision result.

Alpha channel is the last channel and is not processed.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiSumGetBufferSize_16s_AC4R](#) to determine the minimum number of bytes required.

aSum Array that contains computed sum for each channel (alpha channel is not computed).

7.76.1.2 NppStatus nppiSum_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f * *pSum*)

1-channel 16-bit signed short image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiSumGetBufferSize_16s_C1R](#) to determine the minimum number of bytes required.

pSum Pointer to the computed sum.

7.76.1.3 NppStatus nppiSum_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aSum*[3])

3-channel 16-bit signed short image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiSumGetBufferSize_16s_C3R](#) to determine the minimum number of bytes required.

aSum Array that contains computed sum for each channel.

7.76.1.4 NppStatus nppiSum_16s_C4R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aSum*[4])

4-channel 16-bit signed short image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiSumGetBufferSize_16s_C4R](#) to determine the minimum number of bytes required.

aSum Array that contains computed sum for each channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.76.1.5 NppStatus nppiSum_16u_AC4R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aSum*[3])

4-channel 16-bit unsigned short image sum with 64-bit double precision result.

Alpha channel is the last channel and is not processed.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiSumGetBufferSize_16u_AC4R](#) to determine the minimum number of bytes required.

aSum Array that contains computed sum for each channel (alpha channel is not computed).

7.76.1.6 NppStatus nppiSum_16u_C1R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f * *pSum*)

1-channel 16-bit unsigned short image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiSumGetBufferSize_16u_C1R](#) to determine the minimum number of bytes required.

pSum Pointer to the computed sum.

7.76.1.7 NppStatus nppiSum_16u_C3R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aSum*[3])

3-channel 16-bit unsigned short image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiSumGetBufferSize_16u_C3R](#) to determine the minimum number of bytes required.

aSum Array that contains computed sum for each channel.

**7.76.1.8 NppStatus nppiSum_16u_C4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI,
Npp8u * pDeviceBuffer, Npp64f aSum[4])**

4-channel 16-bit unsigned short image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiSumGetBufferSize_16u_C4R](#) to determine the minium number of bytes required.

aSum Array that contains computed sum for each channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.76.1.9 NppStatus nppiSum_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI,
Npp8u * pDeviceBuffer, Npp64f aSum[3])**

4-channel 32-bit floating point image sum with 64-bit double precision result.

Alpha channel is the last channel and is not processed.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiSumGetBufferSize_32f_AC4R](#) to determine the minium number of bytes required.

aSum Array that contains computed sum for each channel (alpha channel is not computed).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.76.1.10 NppStatus nppiSum_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI,
Npp8u * pDeviceBuffer, Npp64f * pSum)**

1-channel 32-bit floating point image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiSumGetBufferSize_32f_C1R](#) to determine the minium number of bytes required.

pSum Pointer to the computed sum.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.76.1.11 NppStatus nppiSum_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aSum*[3])

3-channel 32-bit floating point image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiSumGetBufferSize_32f_C3R](#) to determine the minimum number of bytes required.

aSum Array that contains computed sum for each channel.

7.76.1.12 NppStatus nppiSum_32f_C4R (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aSum*[4])

4-channel 32-bit floating point image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use

[nppiSumGetBufferSize_32f_C4R](#) to determine the minimum number of bytes required.

aSum Array that contains computed sum for each channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.76.1.13 NppStatus nppiSum_8u64s_C1R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64s * *pSum*)

1-channel 8-bit unsigned char image sum with 64-bit long long result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiSumGetBufferSize_8u64s_C1R](#) to determine the minimum number of bytes required.

pSum Pointer to the computed sum.

7.76.1.14 NppStatus nppiSum_8u64s_C4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64s aSum[4])

4-channel 8-bit unsigned char image sum with 64-bit long long result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiSumGetBufferSize_8u64s_C4R](#) to determine the minium number of bytes required.

aSum Array that contains computed sum for each channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.76.1.15 NppStatus nppiSum_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f aSum[3])

4-channel 8-bit unsigned char image sum with 64-bit double precision result.

Alpha channel is the last channel and is not processed.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#). Use [nppiSumGetBufferSize_8u_AC4R](#) to determine the minium number of bytes required.

aSum Array that contains computed sum for each channel (alpha channel is not computed).

7.76.1.16 NppStatus nppiSum_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pSum)

1-channel 8-bit unsigned char image sum with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#). Use [nppiSumGetBufferSize_8u_C1R](#) to determine the minium number of bytes required.

pSum Pointer to the computed sum.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.76.1.17 NppStatus nppiSum_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aSum*[3])

3-channel 8-bit unsigned char image sum with 64-bit double precision result.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- pDeviceBuffer* Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#). Use [nppiSumGetBufferSize_8u_C3R](#) to determine the minimum number of bytes required.
- aSum* Array that contains computed sum for each channel.

7.76.1.18 NppStatus nppiSum_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aSum*[4])

4-channel 8-bit unsigned char image sum with 64-bit double precision result.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- pDeviceBuffer* Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiSumGetBufferSize_8u_C4R](#) to determine the minimum number of bytes required.
- aSum* Array that contains computed sum for each channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.76.1.19 NppStatus nppiSumGetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_16s_AC4R.

Parameters:

- oSizeROI* Region-of-Interest (ROI).
- hpBufferSize* Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.20 NppStatus nppiSumGetBufferSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.21 NppStatus nppiSumGetBufferSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.22 NppStatus nppiSumGetBufferSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.23 NppStatus nppiSumGetBufferSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.24 NppStatus nppiSumGetBufferHostSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.25 NppStatus nppiSumGetBufferHostSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.26 NppStatus nppiSumGetBufferHostSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.27 NppStatus nppiSumGetBufferSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.28 NppStatus nppiSumGetBufferSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.29 NppStatus nppiSumGetBufferSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.30 NppStatus nppiSumGetBufferSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.31 NppStatus nppiSumGetBufferSize_8u64s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_8u64s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.32 NppStatus nppiSumGetBufferSize_8u64s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_8u64s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.33 NppStatus nppiSumGetBufferSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.34 NppStatus nppiSumGetBufferSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.35 NppStatus nppiSumGetBufferSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.76.1.36 NppStatus nppiSumGetBufferSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiSum_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77 Minimum

Min

These min routines find the minimal pixel value of an image.

If the image has multiple channels, the functions find the minimum for each channel separately. The scratch buffer is also required by the functions.

- **NppStatus nppiMinGetBufferSize_8u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_8u_C1R.
- **NppStatus nppiMinGetBufferSize_16u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_16u_C1R.
- **NppStatus nppiMinGetBufferSize_16s_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_16s_C1R.
- **NppStatus nppiMinGetBufferSize_32f_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_32f_C1R.
- **NppStatus nppiMinGetBufferSize_8u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_8u_C3R.
- **NppStatus nppiMinGetBufferSize_16u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_16u_C3R.
- **NppStatus nppiMinGetBufferSize_16s_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_16s_C3R.
- **NppStatus nppiMinGetBufferSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_32f_C3R.
- **NppStatus nppiMinGetBufferSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_8u_C4R.
- **NppStatus nppiMinGetBufferSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_16u_C4R.
- **NppStatus nppiMinGetBufferSize_16s_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_16s_C4R.
- **NppStatus nppiMinGetBufferSize_32f_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_32f_C4R.
- **NppStatus nppiMinGetBufferSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_8u_AC4R.
- **NppStatus nppiMinGetBufferSize_16u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMin_16u_AC4R.

- **NppStatus nppiMinGetBufferSize_16s_AC4R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMin_16s_AC4R.
- **NppStatus nppiMinGetBufferSize_32f_AC4R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMin_32f_AC4R.
- **NppStatus nppiMin_8u_C1R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** *pMin)
1-channel 8-bit unsigned char image min.
- **NppStatus nppiMin_16u_C1R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** *pMin)
1-channel 16-bit unsigned short integer image min.
- **NppStatus nppiMin_16s_C1R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** *pMin)
1-channel 16-bit signed short integer image min.
- **NppStatus nppiMin_32f_C1R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** *pMin)
1-channel 32-bit floating point image min.
- **NppStatus nppiMin_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** aMin[3])
3-channel 8-bit unsigned char image min.
- **NppStatus nppiMin_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** aMin[3])
3-channel 16-bit unsigned short integer image min.
- **NppStatus nppiMin_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMin[3])
3-channel 16-bit signed short integer image min.
- **NppStatus nppiMin_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMin[3])
3-channel 32-bit floating point image min.
- **NppStatus nppiMin_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** aMin[4])
4-channel 8-bit unsigned char image min.
- **NppStatus nppiMin_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** aMin[4])
4-channel 16-bit unsigned short integer image min.
- **NppStatus nppiMin_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMin[4])
4-channel 16-bit signed short integer image min.

- **NppStatus nppiMin_32f_C4R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMin[4])
4-channel 32-bit floating point image min.
- **NppStatus nppiMin_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** aMin[3])
4-channel 8-bit unsigned char image min (alpha channel is not processed).
- **NppStatus nppiMin_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** aMin[3])
4-channel 16-bit unsigned short integer image min (alpha channel is not processed).
- **NppStatus nppiMin_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMin[3])
4-channel 16-bit signed short integer image min (alpha channel is not processed).
- **NppStatus nppiMin_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMin[3])
4-channel 32-bit floating point image min (alpha channel is not processed).

MinIdx

The functions find the minimal value and its indices (X and Y coordinates) of an image.

If the image contains multiple channels, the function will find the values and the indices for each channel separately. If there are several minima in the selected region of interest, the function returns the top leftmost position.

- **NppStatus nppiMinIdxGetBufferSize_8u_C1R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinIdx_8u_C1R.
- **NppStatus nppiMinIdxGetBufferSize_16u_C1R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinIdx_16u_C1R.
- **NppStatus nppiMinIdxGetBufferSize_16s_C1R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinIdx_16s_C1R.
- **NppStatus nppiMinIdxGetBufferSize_32f_C1R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinIdx_32f_C1R.
- **NppStatus nppiMinIdxGetBufferSize_8u_C3R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinIdx_8u_C3R.
- **NppStatus nppiMinIdxGetBufferSize_16u_C3R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinIdx_16u_C3R.
- **NppStatus nppiMinIdxGetBufferSize_16s_C3R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinIdx_16s_C3R.

- **NppStatus nppiMinIdxGetBufferHostSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_32f_C3R.
- **NppStatus nppiMinIdxGetBufferHostSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_8u_C4R.
- **NppStatus nppiMinIdxGetBufferHostSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_16u_C4R.
- **NppStatus nppiMinIdxGetBufferHostSize_16s_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_16s_C4R.
- **NppStatus nppiMinIdxGetBufferHostSize_32f_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_32f_C4R.
- **NppStatus nppiMinIdxGetBufferHostSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_8u_AC4R.
- **NppStatus nppiMinIdxGetBufferHostSize_16u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_16u_AC4R.
- **NppStatus nppiMinIdxGetBufferHostSize_16s_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_16s_AC4R.
- **NppStatus nppiMinIdxGetBufferHostSize_32f_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinIdx_32f_AC4R.
- **NppStatus nppiMinIdx_8u_C1R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp8u *pMin, int *pIndexX, int *pIndexY)**
1-channel 8-bit unsigned char image min with its X and Y coordinates.
- **NppStatus nppiMinIdx_16u_C1R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16u *pMin, int *pIndexX, int *pIndexY)**
1-channel 16-bit unsigned short integer image min with its X and Y coordinates.
- **NppStatus nppiMinIdx_16s_C1R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16s *pMin, int *pIndexX, int *pIndexY)**
1-channel 16-bit signed short integer image min with its X and Y coordinates.
- **NppStatus nppiMinIdx_32f_C1R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp32f *pMin, int *pIndexX, int *pIndexY)**
1-channel 32-bit floating point image min with its X and Y coordinates.
- **NppStatus nppiMinIdx_8u_C3R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp8u aMin[3], int aIndexX[3], int aIndexY[3])**
3-channel 8-bit unsigned char image min values with their X and Y coordinates.
- **NppStatus nppiMinIdx_16u_C3R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16u aMin[3], int aIndexX[3], int aIndexY[3])**
3-channel 16-bit unsigned short integer image min values with their X and Y coordinates.

- **NppStatus nppiMinIdx_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMin[3], int aIndexX[3], int aIndexY[3])
3-channel 16-bit signed short integer image min values with their X and Y coordinates.
- **NppStatus nppiMinIdx_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMin[3], int aIndexX[3], int aIndexY[3])
3-channel 32-bit floating point image min values with their X and Y coordinates.
- **NppStatus nppiMinIdx_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** aMin[4], int aIndexX[4], int aIndexY[4])
4-channel 8-bit unsigned char image min values with their X and Y coordinates.
- **NppStatus nppiMinIdx_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** aMin[4], int aIndexX[4], int aIndexY[4])
4-channel 16-bit unsigned short integer image min values with their X and Y coordinates.
- **NppStatus nppiMinIdx_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMin[4], int aIndexX[4], int aIndexY[4])
4-channel 16-bit signed short integer image min values with their X and Y coordinates.
- **NppStatus nppiMinIdx_32f_C4R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMin[4], int aIndexX[4], int aIndexY[4])
4-channel 32-bit floating point image min values with their X and Y coordinates.
- **NppStatus nppiMinIdx_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** aMin[3], int aIndexX[3], int aIndexY[3])
4-channel 8-bit unsigned char image min values with their X and Y coordinates (alpha channel is not processed).
- **NppStatus nppiMinIdx_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** aMin[3], int aIndexX[3], int aIndexY[3])
4-channel 16-bit unsigned short integer image min values with their X and Y coordinates (alpha channel is not processed).
- **NppStatus nppiMinIdx_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMin[3], int aIndexX[3], int aIndexY[3])
4-channel 16-bit signed short integer image min values with their X and Y coordinates (alpha channel is not processed).
- **NppStatus nppiMinIdx_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMin[3], int aIndexX[3], int aIndexY[3])
4-channel 32-bit floating point image min values with their X and Y coordinates (alpha channel is not processed).

7.77.1 Function Documentation

7.77.1.1 NppStatus nppiMin_16s_AC4R (const Npp16s * pSrc, int nSrcStep, NppSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s aMin[3])

4-channel 16-bit signed short integer image min (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_16s_AC4R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum result, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.2 NppStatus nppiMin_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16s * *pMin*)

1-channel 16-bit signed short integer image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_16s_C1R](#) to determine the minimum number of bytes required.
pMin Device-memory pointer receiving the minimum result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.3 NppStatus nppiMin_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16s *aMin*[3])

3-channel 16-bit signed short integer image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_16s_C3R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum results, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.4 NppStatus nppiMin_16s_C4R (const Npp16s * *pSrc*, int *nSrcStep*, NppSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16s *aMin*[4])

4-channel 16-bit signed short integer image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_16s_C4R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum result, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.5 NppStatus nppiMin_16u_AC4R (const Npp16u * *pSrc*, int *nSrcStep*, NppSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16u *aMin*[3])

4-channel 16-bit unsigned short integer image min (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_16u_AC4R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum result, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.6 NppStatus nppiMin_16u_C1R (const Npp16u * *pSrc*, int *nSrcStep*, NppSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16u * *pMin*)

1-channel 16-bit unsigned short integer image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_16u_C1R](#) to determine the minimum number of bytes required.
pMin Device-memory pointer receiving the minimum result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.7 NppStatus nppiMin_16u_C3R (const Npp16u * pSrc, int nSrcStep, NppSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMin[3])

3-channel 16-bit unsigned short integer image min.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_16u_C3R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum results, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.8 NppStatus nppiMin_16u_C4R (const Npp16u * pSrc, int nSrcStep, NppSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMin[4])

4-channel 16-bit unsigned short integer image min.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_16u_C4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.9 NppStatus nppiMin_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMin[3])

4-channel 32-bit floating point image min (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_32f_AC4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.10 NppStatus nppiMin_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f * pMin)

1-channel 32-bit floating point image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinGetBufferSize_32f_C1R](#) to determine the minimum number of bytes required.
pMin Device-memory pointer receiving the minimum result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.11 NppStatus nppiMin_32f_C3R (const Npp32f * pSrc, int nSrcStep, NppSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMin[3])

3-channel 32-bit floating point image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinGetBufferSize_32f_C3R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum results, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.12 NppStatus nppiMin_32f_C4R (const Npp32f * pSrc, int nSrcStep, NppSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMin[4])

4-channel 32-bit floating point image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinGetBufferSize_32f_C4R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum result, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.77.1.13 NppStatus nppiMin_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI,
Npp8u * pDeviceBuffer, Npp8u aMin[3])**

4-channel 8-bit unsigned char image min (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_8u_AC4R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum result, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.77.1.14 NppStatus nppiMin_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI,
Npp8u * pDeviceBuffer, Npp8u * pMin)**

1-channel 8-bit unsigned char image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_8u_C1R](#) to determine the minimum number of bytes required.
pMin Device-memory pointer receiving the minimum result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.77.1.15 NppStatus nppiMin_8u_C3R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI,
Npp8u * pDeviceBuffer, Npp8u aMin[3])**

3-channel 8-bit unsigned char image min.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinGetBufferSize_8u_C3R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum results, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.16 NppStatus nppiMin_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp8u *aMin*[4])

4-channel 8-bit unsigned char image min.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use](#) [nppiMinGetBufferSize_8u_C4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.17 NppStatus nppiMinGetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_16s_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.18 NppStatus nppiMinGetBufferSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.19 NppStatus nppiMinGetBufferSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.20 NppStatus nppiMinGetBufferSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.21 NppStatus nppiMinGetBufferSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.22 NppStatus nppiMinGetBufferSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.23 NppStatus nppiMinGetBufferHostSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.24 NppStatus nppiMinGetBufferHostSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.25 NppStatus nppiMinGetBufferHostSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.26 NppStatus nppiMinGetBufferSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.27 NppStatus nppiMinGetBufferSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.28 NppStatus nppiMinGetBufferSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.29 NppStatus nppiMinGetBufferSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.30 NppStatus nppiMinGetBufferSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.31 NppStatus nppiMinGetBufferSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.32 NppStatus nppiMinGetBufferSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMin_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.33 NppStatus nppiMinIdx_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16s *aMin*[3], int *aIndexX*[3], int *aIndexY*[3])

4-channel 16-bit signed short integer image min values with their X and Y coordinates (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinIdxGetBufferSize_16s_AC4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, three elements for the three channels.

aIndexX Device-memory array to the X coordinates of the image min values, three elements for the three channels.

aIndexY Device-memory array to the Y coordinates of the image min values, three elements for the three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.34 NppStatus nppiMinIdx_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16s * *pMin*, int * *pIndexX*, int * *pIndexY*)

1-channel 16-bit signed short integer image min with its X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinIdxGetBufferSize_16s_C1R](#) to determine the minimum number of bytes required.

pMin Device-memory pointer receiving the minimum result.

pIndexX Device-memory pointer to the X coordinate of the image min value.

pIndexY Device-memory pointer to the Y coordinate of the image min value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.35 NppStatus nppiMinIdx_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16s *aMin*[3], int *aIndexX*[3], int *aIndexY*[3])

3-channel 16-bit signed short integer image min values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferHostSize_16s_C3R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum result, three elements for three channels.
aIndexX Device-memory array to the X coordinates of the image min values, three elements for three channels.
aIndexY Device-memory array to the Y coordinates of the image min values, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.36 NppStatus nppiMinIdx_16s_C4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s aMin[4], int aIndexX[4], int aIndexY[4])

4-channel 16-bit signed short integer image min values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferHostSize_16s_C4R](#) to determine the minimum number of bytes required.
aMin Device-memory array receiving the minimum result, four elements for four channels.
aIndexX Device-memory array to the X coordinates of the image min values, four elements for four channels.
aIndexY Device-memory array to the Y coordinates of the image min values, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.37 NppStatus nppiMinIdx_16u_AC4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMin[3], int aIndexX[3], int aIndexY[3])

4-channel 16-bit unsigned short integer image min values with their X and Y coordinates (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferSize_16u_AC4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, three elements for the three channels.

aIndexX Device-memory array to the X coordinates of the image min values, three elements for the three channels.

aIndexY Device-memory array to the Y coordinates of the image min values, three elements for the three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.38 NppStatus nppiMinIdx_16u_C1R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u * pMin, int * pIndexX, int * pIndexY)

1-channel 16-bit unsigned short integer image min with its X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferSize_16u_C1R](#) to determine the minimum number of bytes required.

pMin Device-memory pointer receiving the minimum result.

pIndexX Device-memory pointer to the X coordinate of the image min value.

pIndexY Device-memory pointer to the Y coordinate of the image min value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.39 NppStatus nppiMinIdx_16u_C3R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMin[3], int aIndexX[3], int aIndexY[3])

3-channel 16-bit unsigned short integer image min values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferSize_16u_C3R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, three elements for three channels.

aIndexX Device-memory array to the X coordinates of the image min values, three elements for three channels.

aIndexY Device-memory array to the Y coordinates of the image min values, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.40 NppStatus nppiMinIdx_16u_C4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMin[4], int aIndexX[4], int aIndexY[4])

4-channel 16-bit unsigned short integer image min values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferSize_16u_C4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, four elements for four channels.

aIndexX Device-memory array to the X coordinates of the image min values, four elements for four channels.

aIndexY Device-memory array to the Y coordinates of the image min values, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.41 NppStatus nppiMinIdx_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMin[3], int aIndexX[3], int aIndexY[3])

4-channel 32-bit floating point image min values with their X and Y coordinates (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferSize_32f_AC4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, three elements for the three channels.

aIndexX Device-memory array to the X coordinates of the image min values, three elements for the three channels.

aIndexY Device-memory array to the Y coordinates of the image min values, three elements for the three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.42 NppStatus nppiMinIdx_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f * pMin, int * pIndexX, int * pIndexY)

1-channel 32-bit floating point image min with its X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferSize_32f_C1R](#) to determine the minimum number of bytes required.

pMin Device-memory pointer receiving the minimum result.

pIndexX Device-memory pointer to the X coordinate of the image min value.

pIndexY Device-memory pointer to the Y coordinate of the image min value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.43 NppStatus nppiMinIdx_32f_C3R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMin[3], int aIndexX[3], int aIndexY[3])

3-channel 32-bit floating point image min values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMinIdxGetBufferSize_32f_C3R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, three elements for three channels.

aIndexX Device-memory array to the X coordinates of the image min values, three elements for three channels.

aIndexY Device-memory array to the Y coordinates of the image min values, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.44 NppStatus nppiMinIdx_32f_C4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMin[4], int aIndexX[4], int aIndexY[4])

4-channel 32-bit floating point image min values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinIdxGetBufferSize_32f_C4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, four elements for four channels.

aIndexX Device-memory array to the X coordinates of the image min values, four elements for four channels.

aIndexY Device-memory array to the Y coordinates of the image min values, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.45 NppStatus nppiMinIdx_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp8u aMin[3], int aIndexX[3], int aIndexY[3])

4-channel 8-bit unsigned char image min values with their X and Y coordinates (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinIdxGetBufferSize_8u_AC4R](#) to determine the minimum number of bytes required.

aMin Device-memory array receiving the minimum result, three elements for the three channels.

aIndexX Device-memory array to the X coordinates of the image min values, three elements for the three channels.

aIndexY Device-memory array to the Y coordinates of the image min values, three elements for the three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.46 NppStatus nppiMinIdx_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp8u * pMin, int * pIndexX, int * pIndexY)

1-channel 8-bit unsigned char image min with its X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinIdxGetBufferSize_8u_C1R](#) to determine the minimum number of bytes required.

pMin Device-memory pointer receiving the minimum result.

pIndexX Device-memory pointer to the X coordinate of the image min value.

pIndexY Device-memory pointer to the Y coordinate of the image min value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.47 NppStatus nppiMinIndx_8u_C3R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp8u aMin[3], int aIndexX[3], int aIndexY[3])

3-channel 8-bit unsigned char image min values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinIndxGetBufferSize_8u_C3R](#) to determine the minium number of bytes required.

aMin Device-memory array receiving the minimum result, three elements for three channels.

aIndexX Device-memory array to the X coordinates of the image min values, three elements for three channels.

aIndexY Device-memory array to the Y coordinates of the image min values, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.48 NppStatus nppiMinIndx_8u_C4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp8u aMin[4], int aIndexX[4], int aIndexY[4])

4-channel 8-bit unsigned char image min values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMinIndxGetBufferSize_8u_C4R](#) to determine the minium number of bytes required.

aMin Device-memory array receiving the minimum result, four elements for four channels.

aIndexX Device-memory array to the X coordinates of the image min values, four elements for four channels.

aIndexY Device-memory array to the Y coordinates of the image min values, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.77.1.49 NppStatus nppiMinIdxGetBufferHostSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.50 NppStatus nppiMinIdxGetBufferHostSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.51 NppStatus nppiMinIdxGetBufferHostSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.52 NppStatus nppiMinIdxGetBufferHostSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.53 NppStatus nppiMinIdxGetBufferHostSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.54 NppStatus nppiMinIdxGetBufferHostSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.55 NppStatus nppiMinIdxGetBufferHostSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.56 NppStatus nppiMinIdxGetBufferHostSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.57 NppStatus nppiMinIdxGetBufferHostSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.58 NppStatus nppiMinIdxGetBufferHostSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.59 NppStatus nppiMinIdxGetBufferHostSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.60 NppStatus nppiMinIdxGetBufferHostSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.61 NppStatus nppiMinIdxGetBufferHostSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.62 NppStatus nppiMinIdxGetBufferHostSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.63 NppStatus nppiMinIdxGetBufferHostSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.77.1.64 NppStatus nppiMinIdxGetBufferHostSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinIdx_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78 Maximum

Max

These max routines find the maximal pixel value of an image.

If the image has multiple channels, the functions find the maximum for each channel separately. The scratch buffer is also required by the functions.

- **NppStatus nppiMaxGetBufferSize_8u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_8u_C1R.
- **NppStatus nppiMaxGetBufferSize_16u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_16u_C1R.
- **NppStatus nppiMaxGetBufferSize_16s_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_16s_C1R.
- **NppStatus nppiMaxGetBufferSize_32f_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_32f_C1R.
- **NppStatus nppiMaxGetBufferSize_8u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_8u_C3R.
- **NppStatus nppiMaxGetBufferSize_16u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_16u_C3R.
- **NppStatus nppiMaxGetBufferSize_16s_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_16s_C3R.
- **NppStatus nppiMaxGetBufferSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_32f_C3R.
- **NppStatus nppiMaxGetBufferSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_8u_C4R.
- **NppStatus nppiMaxGetBufferSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_16u_C4R.
- **NppStatus nppiMaxGetBufferSize_16s_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_16s_C4R.
- **NppStatus nppiMaxGetBufferSize_32f_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_32f_C4R.
- **NppStatus nppiMaxGetBufferSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_8u_AC4R.
- **NppStatus nppiMaxGetBufferSize_16u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_16u_AC4R.

- **NppStatus nppiMaxGetBufferSize_16s_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_16s_AC4R.
- **NppStatus nppiMaxGetBufferSize_32f_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMax_32f_AC4R.
- **NppStatus nppiMax_8u_C1R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp8u *pMax)**
1-channel 8-bit unsigned char image max.
- **NppStatus nppiMax_16u_C1R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16u *pMax)**
1-channel 16-bit unsigned short integer image max.
- **NppStatus nppiMax_16s_C1R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16s *pMax)**
1-channel 16-bit signed short integer image max.
- **NppStatus nppiMax_32f_C1R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp32f *pMax)**
1-channel 32-bit floating point image max.
- **NppStatus nppiMax_8u_C3R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp8u aMax[3])**
3-channel 8-bit unsigned char image max.
- **NppStatus nppiMax_16u_C3R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16u aMax[3])**
3-channel 16-bit unsigned short integer image max.
- **NppStatus nppiMax_16s_C3R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16s aMax[3])**
3-channel 16-bit signed short integer image max.
- **NppStatus nppiMax_32f_C3R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp32f aMax[3])**
3-channel 32-bit floating point image max.
- **NppStatus nppiMax_8u_C4R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp8u aMax[4])**
4-channel 8-bit unsigned char image max.
- **NppStatus nppiMax_16u_C4R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16u aMax[4])**
4-channel 16-bit unsigned short integer image max.
- **NppStatus nppiMax_16s_C4R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16s aMax[4])**
4-channel 16-bit signed short integer image max.

- **NppStatus nppiMax_32f_C4R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMax[4])
4-channel 32-bit floating point image max.
- **NppStatus nppiMax_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** aMax[3])
4-channel 8-bit unsigned char image max (alpha channel is not processed).
- **NppStatus nppiMax_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** aMax[3])
4-channel 16-bit unsigned short integer image max (alpha channel is not processed).
- **NppStatus nppiMax_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMax[3])
4-channel 16-bit signed short integer image max (alpha channel is not processed).
- **NppStatus nppiMax_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMax[3])
4-channel 32-bit floating point image max (alpha channel is not processed).

MaxIdx

The functions find the max value and its indices (X and Y coordinates) of an image.

If the image contains multiple channels, the functions finds the values and their indices for each channel separately. If there are several maxima in the selected region of interest, the function returns the top leftmost position.

- **NppStatus nppiMaxIdxGetBufferSize_8u_C1R** (**NppSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMaxIdx_8u_C1R.
- **NppStatus nppiMaxIdxGetBufferSize_16u_C1R** (**NppSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMaxIdx_16u_C1R.
- **NppStatus nppiMaxIdxGetBufferSize_16s_C1R** (**NppSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMaxIdx_16s_C1R.
- **NppStatus nppiMaxIdxGetBufferSize_32f_C1R** (**NppSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMaxIdx_32f_C1R.
- **NppStatus nppiMaxIdxGetBufferSize_8u_C3R** (**NppSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMaxIdx_8u_C3R.
- **NppStatus nppiMaxIdxGetBufferSize_16u_C3R** (**NppSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMaxIdx_16u_C3R.
- **NppStatus nppiMaxIdxGetBufferSize_16s_C3R** (**NppSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMaxIdx_16s_C3R.

- **NppStatus nppiMaxIdxGetBufferHostSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_32f_C3R.
- **NppStatus nppiMaxIdxGetBufferHostSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_8u_C4R.
- **NppStatus nppiMaxIdxGetBufferHostSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_16u_C4R.
- **NppStatus nppiMaxIdxGetBufferHostSize_16s_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_16s_C4R.
- **NppStatus nppiMaxIdxGetBufferHostSize_32f_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_32f_C4R.
- **NppStatus nppiMaxIdxGetBufferHostSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_8u_AC4R.
- **NppStatus nppiMaxIdxGetBufferHostSize_16u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_16u_AC4R.
- **NppStatus nppiMaxIdxGetBufferHostSize_16s_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_16s_AC4R.
- **NppStatus nppiMaxIdxGetBufferHostSize_32f_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMaxIdx_32f_AC4R.
- **NppStatus nppiMaxIdx_8u_C1R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp8u *pMax, int *pIndexX, int *pIndexY)**
1-channel 8-bit unsigned char image max value with its X and Y coordinates.
- **NppStatus nppiMaxIdx_16u_C1R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16u *pMax, int *pIndexX, int *pIndexY)**
1-channel 16-bit unsigned short integer image max value with its X and Y coordinates.
- **NppStatus nppiMaxIdx_16s_C1R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16s *pMax, int *pIndexX, int *pIndexY)**
1-channel 16-bit signed short integer image max value with its X and Y coordinates.
- **NppStatus nppiMaxIdx_32f_C1R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp32f *pMax, int *pIndexX, int *pIndexY)**
1-channel 32-bit floating point image max value with its X and Y coordinates.
- **NppStatus nppiMaxIdx_8u_C3R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp8u aMax[3], int aIndexX[3], int aIndexY[3])**
3-channel 8-bit unsigned char image max values with their X and Y coordinates.
- **NppStatus nppiMaxIdx_16u_C3R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp16u aMax[3], int aIndexX[3], int aIndexY[3])**
3-channel 16-bit unsigned short integer image max values with their X and Y coordinates.

- **NppStatus nppiMaxIdx_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMax[3], int aIndexX[3], int aIndexY[3])
3-channel 16-bit signed short integer image max values with their X and Y coordinates.
- **NppStatus nppiMaxIdx_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMax[3], int aIndexX[3], int aIndexY[3])
3-channel 32-bit floating point image max values with their X and Y coordinates.
- **NppStatus nppiMaxIdx_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** aMax[4], int aIndexX[4], int aIndexY[4])
4-channel 8-bit unsigned char image max values with their X and Y coordinates.
- **NppStatus nppiMaxIdx_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** aMax[4], int aIndexX[4], int aIndexY[4])
4-channel 16-bit unsigned short integer image max values with their X and Y coordinates.
- **NppStatus nppiMaxIdx_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMax[4], int aIndexX[4], int aIndexY[4])
4-channel 16-bit signed short integer image max values with their X and Y coordinates.
- **NppStatus nppiMaxIdx_32f_C4R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMax[4], int aIndexX[4], int aIndexY[4])
4-channel 32-bit floating point image max values with their X and Y coordinates.
- **NppStatus nppiMaxIdx_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp8u** aMax[3], int aIndexX[3], int aIndexY[3])
4-channel 8-bit unsigned char image max values with their X and Y coordinates (alpha channel is not processed).
- **NppStatus nppiMaxIdx_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16u** aMax[3], int aIndexX[3], int aIndexY[3])
4-channel 16-bit unsigned short integer image max values with their X and Y coordinates (alpha channel is not processed).
- **NppStatus nppiMaxIdx_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp16s** aMax[3], int aIndexX[3], int aIndexY[3])
4-channel 16-bit signed short integer image max values with their X and Y coordinates (alpha channel is not processed).
- **NppStatus nppiMaxIdx_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp32f** aMax[3], int aIndexX[3], int aIndexY[3])
4-channel 32-bit floating point image max values with their X and Y coordinates (alpha channel is not processed).

7.78.1 Function Documentation

7.78.1.1 NppStatus nppiMax_16s_AC4R (const Npp16s * pSrc, int nSrcStep, NppSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s aMax[3])

4-channel 16-bit signed short integer image max (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_16s_AC4R](#) to determine the minimum number of bytes required.
aMax Device-memory array receiving the maximum result, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.2 NppStatus nppiMax_16s_C1R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s * pMax)

1-channel 16-bit signed short integer image max.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_16s_C1R](#) to determine the minimum number of bytes required.
pMax Device-memory pointer receiving the maximum result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.3 NppStatus nppiMax_16s_C3R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s aMax[3])

3-channel 16-bit signed short integer image max.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_16s_C3R](#) to determine the minimum number of bytes required.
aMax Device-memory array receiving the maximum results, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.4 NppStatus nppiMax_16s_C4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s aMax[4])

4-channel 16-bit signed short integer image max.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_16s_C4R](#) to determine the minimum number of bytes required.
aMax Device-memory array receiving the maximum results, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.5 NppStatus nppiMax_16u_AC4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMax[3])

4-channel 16-bit unsigned short integer image max (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_16u_AC4R](#) to determine the minimum number of bytes required.
aMax Device-memory array receiving the maximum result, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.6 NppStatus nppiMax_16u_C1R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u * pMax)

1-channel 16-bit unsigned short integer image max.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_16u_C1R](#) to determine the minimum number of bytes required.
pMax Device-memory pointer receiving the maximum result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.7 NppStatus nppiMax_16u_C3R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16u *aMax*[3])

3-channel 16-bit unsigned short integer image max.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxGetBufferSize_16u_C3R](#) to determine the minium number of bytes required.
aMax Device-memory array receiving the maximum results, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.8 NppStatus nppiMax_16u_C4R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp16u *aMax*[4])

4-channel 16-bit unsigned short integer image max.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxGetBufferSize_16u_C4R](#) to determine the minium number of bytes required.
aMax Device-memory array receiving the maximum results, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.9 NppStatus nppiMax_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp32f *aMax*[3])

4-channel 32-bit floating point image max (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxGetBufferSize_32f_AC4R](#) to determine the minium number of bytes required.
aMax Device-memory array receiving the maximum result, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.10 NppStatus nppiMax_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f * pMax)

1-channel 32-bit floating point image max.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_32f_C1R](#) to determine the minimum number of bytes required.

pMax Device-memory pointer receiving the maximum result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.11 NppStatus nppiMax_32f_C3R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMax[3])

3-channel 32-bit floating point image max.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_32f_C3R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum results, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.12 NppStatus nppiMax_32f_C4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMax[4])

4-channel 32-bit floating point image max.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_32f_C4R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum results, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.13 NppStatus nppiMax_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u **pDeviceBuffer*, Npp8u *aMax*[3])

4-channel 8-bit unsigned char image max (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_8u_AC4R](#) to determine the minimum number of bytes required.
aMax Device-memory array receiving the maximum result, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.14 NppStatus nppiMax_8u_C1R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u **pDeviceBuffer*, Npp8u **pMax*)

1-channel 8-bit unsigned char image max.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_8u_C1R](#) to determine the minimum number of bytes required.
pMax Device-memory pointer receiving the maximum result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.15 NppStatus nppiMax_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u **pDeviceBuffer*, Npp8u *aMax*[3])

3-channel 8-bit unsigned char image max.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxGetBufferSize_8u_C3R](#) to determine the minimum number of bytes required.
aMax Device-memory array receiving the maximum results, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.16 NppStatus nppiMax_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp8u *aMax*[4])

4-channel 8-bit unsigned char image max.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxGetBufferSize_8u_C4R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum results, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.17 NppStatus nppiMaxGetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_16s_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.18 NppStatus nppiMaxGetBufferSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.19 NppStatus nppiMaxGetBufferSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.20 NppStatus nppiMaxGetBufferSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.21 NppStatus nppiMaxGetBufferSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.22 NppStatus nppiMaxGetBufferSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.23 NppStatus nppiMaxGetBufferHostSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.24 NppStatus nppiMaxGetBufferHostSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.25 NppStatus nppiMaxGetBufferHostSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.26 NppStatus nppiMaxGetBufferSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.27 NppStatus nppiMaxGetBufferSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.28 NppStatus nppiMaxGetBufferSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.29 NppStatus nppiMaxGetBufferSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.30 NppStatus nppiMaxGetBufferSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.31 NppStatus nppiMaxGetBufferSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.32 NppStatus nppiMaxGetBufferSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMax_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.33 NppStatus nppiMaxIdx_16s_AC4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s aMax[3], int aIndexX[3], int aIndexY[3])

4-channel 16-bit signed short integer image max values with their X and Y coordinates (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxIdxGetBufferSize_16s_AC4R](#) to determine the minium number of bytes required.
aMax Device-memory array receiving the maximum result, three elements for the first three channels.
aIndexX Device-memory array to the X coordinates of the image max values, three elements for the first three channels.
aIndexY Device-memory array to the Y coordinates of the image max values, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.34 NppStatus nppiMaxIdx_16s_C1R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s * pMax, int * pIndexX, int * pIndexY)

1-channel 16-bit signed short integer image max value with its X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxIdxGetBufferSize_16s_C1R](#) to determine the minium number of bytes required.
pMax Device-memory pointer receiving the maximum result.
pIndexX Device-memory pointer to the X coordinate of the image max value.
pIndexY Device-memory pointer to the Y coordinate of the image max value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.35 NppStatus nppiMaxIdx_16s_C3R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s aMax[3], int aIndexX[3], int aIndexY[3])

3-channel 16-bit signed short integer image max values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferHostSize_16s_C3R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum result, three elements for three channels.

aIndexX Device-memory array to the X coordinates of the image max values, three elements for three channels.

aIndexY Device-memory array to the Y coordinates of the image max values, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.36 NppStatus nppiMaxIdx_16s_C4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16s aMax[4], int aIndexX[4], int aIndexY[4])

4-channel 16-bit signed short integer image max values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferHostSize_16s_C4R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum result, four elements for four channels.

aIndexX Device-memory array to the X coordinates of the image max values, four elements for four channels.

aIndexY Device-memory array to the Y coordinates of the image max values, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.37 NppStatus nppiMaxIdx_16u_AC4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMax[3], int aIndexX[3], int aIndexY[3])

4-channel 16-bit unsigned short integer image max values with their X and Y coordinates (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferSize_16u_AC4R](#) to determine the minium number of bytes required.

aMax Device-memory array receiving the maximum result, three elements for the first three channels.

aIndexX Device-memory array to the X coordinates of the image max values, three elements for the first three channels.

aIndexY Device-memory array to the Y coordinates of the image max values, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.38 NppStatus nppiMaxIdx_16u_C1R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u * pMax, int * pIndexX, int * pIndexY)

1-channel 16-bit unsigned short integer image max value with its X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferSize_16u_C1R](#) to determine the minium number of bytes required.

pMax Device-memory pointer receiving the maximum result.

pIndexX Device-memory pointer to the X coordinate of the image max value.

pIndexY Device-memory pointer to the Y coordinate of the image max value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.39 NppStatus nppiMaxIdx_16u_C3R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMax[3], int aIndexX[3], int aIndexY[3])

3-channel 16-bit unsigned short integer image max values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferSize_16u_C3R](#) to determine the minium number of bytes required.

aMax Device-memory array receiving the maximum result, three elements for three channels.

aIndexX Device-memory array to the X coordinates of the image max values, three elements for three channels.

aIndexY Device-memory array to the Y coordinates of the image max values, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.40 NppStatus nppiMaxIdx_16u_C4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp16u aMax[4], int aIndexX[4], int aIndexY[4])

4-channel 16-bit unsigned short integer image max values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferHostSize_16u_C4R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum result, four elements for four channels.

aIndexX Device-memory array to the X coordinates of the image max values, four elements for four channels.

aIndexY Device-memory array to the Y coordinates of the image max values, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.41 NppStatus nppiMaxIdx_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp32f aMax[3], int aIndexX[3], int aIndexY[3])

4-channel 32-bit floating point image max values with their X and Y coordinates (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferHostSize_32f_AC4R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum result, three elements for the first three channels.

aIndexX Device-memory array to the X coordinates of the image max values, three elements for the first three channels.

aIndexY Device-memory array to the Y coordinates of the image max values, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.42 NppStatus nppiMaxIdx_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp32f * *pMax*, int * *pIndexX*, int * *pIndexY*)

1-channel 32-bit floating point image max value with its X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferSize_32f_C1R](#) to determine the minimum number of bytes required.
pMax Device-memory pointer receiving the maximum result.
pIndexX Device-memory pointer to the X coordinate of the image max value.
pIndexY Device-memory pointer to the Y coordinate of the image max value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.43 NppStatus nppiMaxIdx_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp32f *aMax*[3], int *aIndexX*[3], int *aIndexY*[3])

3-channel 32-bit floating point image max values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMaxIdxGetBufferSize_32f_C3R](#) to determine the minimum number of bytes required.
aMax Device-memory array receiving the maximum result, three elements for three channels.
aIndexX Device-memory array to the X coordinates of the image max values, three elements for three channels.
aIndexY Device-memory array to the Y coordinates of the image max values, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.44 NppStatus nppiMaxIdx_32f_C4R (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp32f *aMax*[4], int *aIndexX*[4], int *aIndexY*[4])

4-channel 32-bit floating point image max values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxIdxGetBufferSize_32f_C4R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum result, four elements for four channels.

aIndexX Device-memory array to the X coordinates of the image max values, four elements for four channels.

aIndexY Device-memory array to the Y coordinates of the image max values, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.45 NppStatus nppiMaxIdx_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp8u aMax[3], int aIndexX[3], int aIndexY[3])

4-channel 8-bit unsigned char image max values with their X and Y coordinates (alpha channel is not processed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxIdxGetBufferSize_8u_AC4R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum result, three elements for the first three channels.

aIndexX Device-memory array to the X coordinates of the image max values, three elements for the first three channels.

aIndexY Device-memory array to the Y coordinates of the image max values, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.46 NppStatus nppiMaxIdx_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp8u * pMax, int * pIndexX, int * pIndexY)

1-channel 8-bit unsigned char image max value with its X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxIdxGetBufferSize_8u_C1R](#) to determine the minimum number of bytes required.

pMax Device-memory pointer receiving the maximum result.

pIndexX Device-memory pointer to the X coordinate of the image max value.

pIndexY Device-memory pointer to the Y coordinate of the image max value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.47 NppStatus nppiMaxIdx_8u_C3R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp8u aMax[3], int aIndexX[3], int aIndexY[3])

3-channel 8-bit unsigned char image max values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxIdxGetBufferSize_8u_C3R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum result, three elements for three channels.

aIndexX Device-memory array to the X coordinates of the image max values, three elements for three channels.

aIndexY Device-memory array to the Y coordinates of the image max values, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.48 NppStatus nppiMaxIdx_8u_C4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp8u aMax[4], int aIndexX[4], int aIndexY[4])

4-channel 8-bit unsigned char image max values with their X and Y coordinates.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMaxIdxGetBufferSize_8u_C4R](#) to determine the minimum number of bytes required.

aMax Device-memory array receiving the maximum result, four elements for four channels.

aIndexX Device-memory array to the X coordinates of the image max values, four elements for four channels.

aIndexY Device-memory array to the Y coordinates of the image max values, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.78.1.49 NppStatus nppiMaxIdxGetBufferHostSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_16s_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.50 NppStatus nppiMaxIdxGetBufferHostSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.51 NppStatus nppiMaxIdxGetBufferHostSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.52 NppStatus nppiMaxIdxGetBufferHostSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.53 NppStatus nppiMaxIdxGetBufferHostSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.54 NppStatus nppiMaxIdxGetBufferHostSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.55 NppStatus nppiMaxIdxGetBufferHostSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.56 NppStatus nppiMaxIdxGetBufferHostSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.57 NppStatus nppiMaxIdxGetBufferHostSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.58 NppStatus nppiMaxIdxGetBufferHostSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.59 NppStatus nppiMaxIdxGetBufferHostSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.60 NppStatus nppiMaxIdxGetBufferHostSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.61 NppStatus nppiMaxIdxGetBufferHostSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.62 NppStatus nppiMaxIdxGetBufferHostSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.63 NppStatus nppiMaxIdxGetBufferHostSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.78.1.64 NppStatus nppiMaxIdxGetBufferHostSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMaxIdx_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79 Minimum_Maximum

MinMax

The functions find the minimum and maximum values of an image.

If the image contains multiple channels, the function find the values for each channel separately. The functions also require the device scratch buffer.

- **NppStatus nppiMinMaxGetBufferSize_8u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_8u_C1R.
- **NppStatus nppiMinMaxGetBufferSize_16u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_16u_C1R.
- **NppStatus nppiMinMaxGetBufferSize_16s_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_16s_C1R.
- **NppStatus nppiMinMaxGetBufferSize_32f_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_32f_C1R.
- **NppStatus nppiMinMaxGetBufferSize_8u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_8u_C3R.
- **NppStatus nppiMinMaxGetBufferSize_16u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_16u_C3R.
- **NppStatus nppiMinMaxGetBufferSize_16s_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_16s_C3R.
- **NppStatus nppiMinMaxGetBufferSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_32f_C3R.
- **NppStatus nppiMinMaxGetBufferSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_8u_AC4R.
- **NppStatus nppiMinMaxGetBufferSize_16u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_16u_AC4R.
- **NppStatus nppiMinMaxGetBufferSize_16s_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_16s_AC4R.
- **NppStatus nppiMinMaxGetBufferSize_32f_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_32f_AC4R.
- **NppStatus nppiMinMaxGetBufferSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_8u_C4R.
- **NppStatus nppiMinMaxGetBufferSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMinManx_16u_C4R.

- **NppStatus nppiMinMaxGetBufferSize_16s_C4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiMinManx_16s_C4R.
- **NppStatus nppiMinMaxGetBufferSize_32f_C4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiMinManx_32f_C4R.
- **NppStatus nppiMinMax_8u_C1R** (*const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pMin, Npp8u *pMax, Npp8u *pDeviceBuffer*)
1-channel 8-bit unsigned image minimum and maximum values.
- **NppStatus nppiMinMax_16u_C1R** (*const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp16u *pMin, Npp16u *pMax, Npp8u *pDeviceBuffer*)
1-channel 16-bit unsigned short image minimum and maximum values.
- **NppStatus nppiMinMax_16s_C1R** (*const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp16s *pMin, Npp16s *pMax, Npp8u *pDeviceBuffer*)
1-channel 16-bit signed short image minimum and maximum values.
- **NppStatus nppiMinMax_32f_C1R** (*const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32f *pMin, Npp32f *pMax, Npp8u *pDeviceBuffer*)
1-channel 32-bit floating point image minimum and maximum values.
- **NppStatus nppiMinMax_8u_C3R** (*const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u aMin[3], Npp8u aMax[3], Npp8u *pDeviceBuffer*)
3-channel 8-bit unsigned image minimum and maximum values.
- **NppStatus nppiMinMax_16u_C3R** (*const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp16u aMin[3], Npp16u aMax[3], Npp8u *pDeviceBuffer*)
3-channel 16-bit unsigned short image minimum and maximum values.
- **NppStatus nppiMinMax_16s_C3R** (*const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp16s aMin[3], Npp16s aMax[3], Npp8u *pDeviceBuffer*)
3-channel 16-bit signed short image minimum and maximum values.
- **NppStatus nppiMinMax_32f_C3R** (*const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32f aMin[3], Npp32f aMax[3], Npp8u *pDeviceBuffer*)
3-channel 32-bit floating point image minimum and maximum values.
- **NppStatus nppiMinMax_8u_AC4R** (*const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u aMin[3], Npp8u aMax[3], Npp8u *pDeviceBuffer*)
4-channel 8-bit unsigned image minimum and maximum values (alpha channel is not calculated).
- **NppStatus nppiMinMax_16u_AC4R** (*const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp16u aMin[3], Npp16u aMax[3], Npp8u *pDeviceBuffer*)
4-channel 16-bit unsigned short image minimum and maximum values (alpha channel is not calculated).
- **NppStatus nppiMinMax_16s_AC4R** (*const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp16s aMin[3], Npp16s aMax[3], Npp8u *pDeviceBuffer*)
4-channel 16-bit signed short image minimum and maximum values (alpha channel is not calculated).

- **NppStatus nppiMinMax_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32f** aMin[3], **Npp32f** aMax[3], **Npp8u** *pDeviceBuffer)
4-channel 32-bit floating point image minimum and maximum values (alpha channel is not calculated).
- **NppStatus nppiMinMax_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** aMin[4], **Npp8u** aMax[4], **Npp8u** *pDeviceBuffer)
4-channel 8-bit unsigned image minimum and maximum values.
- **NppStatus nppiMinMax_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp16u** aMin[4], **Npp16u** aMax[4], **Npp8u** *pDeviceBuffer)
4-channel 16-bit unsigned short image minimum and maximum values.
- **NppStatus nppiMinMax_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp16s** aMin[4], **Npp16s** aMax[4], **Npp8u** *pDeviceBuffer)
4-channel 16-bit signed short image minimum and maximum values.
- **NppStatus nppiMinMax_32f_C4R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32f** aMin[4], **Npp32f** aMax[4], **Npp8u** *pDeviceBuffer)
4-channel 32-bit floating point image minimum and maximum values.

MinMaxIdx

MinMax value and their indices (X and Y coordinates) of images.

If there are several minima and maxima in the selected region of interest, the function returns the top leftmost position.

- **NppStatus nppiMinMaxIdxGetBufferSize_8u_C1R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinMaxIdx_8u_C1R.
- **NppStatus nppiMinMaxIdxGetBufferSize_8s_C1R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinMaxIdx_8s_C1R.
- **NppStatus nppiMinMaxIdxGetBufferSize_16u_C1R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinMaxIdx_16u_C1R.
- **NppStatus nppiMinMaxIdxGetBufferSize_32f_C1R** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinMaxIdx_32f_C1R.
- **NppStatus nppiMinMaxIdxGetBufferSize_8u_C1MR** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinMaxIdx_8u_C1MR.
- **NppStatus nppiMinMaxIdxGetBufferSize_8s_C1MR** (**NppiSize** oSizeROI, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppiMinMaxIdx_8s_C1MR.

- **NppStatus nppiMinMaxIdxGetBufferHostSize_16u_C1MR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_16u_C1MR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_32f_C1MR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_32f_C1MR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_8u_C3CR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8u_C3CR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_8s_C3CR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8s_C3CR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_16u_C3CR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_16u_C3CR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_32f_C3CR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_32f_C3CR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_8u_C3CMR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8u_C3CMR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_8s_C3CMR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8s_C3CMR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_16u_C3CMR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_16u_C3CMR.
- **NppStatus nppiMinMaxIdxGetBufferHostSize_32f_C3CMR** (NppiSize oSizeROI, int *hpBufferSize)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_32f_C3CMR.
- **NppStatus nppiMinMaxIdx_8u_C1R** (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pMinValue, Npp8u *pMaxValue, NppiPoint *pMinIndex, NppiPoint *pMaxIndex, Npp8u *pDeviceBuffer)

1-channel 8-bit unsigned char image minimum and maximum values with their indices.
- **NppStatus nppiMinMaxIdx_8s_C1R** (const Npp8s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8s *pMinValue, Npp8s *pMaxValue, NppiPoint *pMinIndex, NppiPoint *pMaxIndex, Npp8u *pDeviceBuffer)

1-channel 8-bit signed char image minimum and maximum values with their indices.

- **NppStatus nppiMinMaxIdx_16u_C1R** (const **Npp16u** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp16u** *pMinValue, **Npp16u** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

1-channel 16-bit unsigned short image minimum and maximum values with their indices.

- **NppStatus nppiMinMaxIdx_32f_C1R** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, **Npp32f** *pMinValue, **Npp32f** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

1-channel 32-bit floating point image minimum and maximum values with their indices.

- **NppStatus nppiMinMaxIdx_8u_C1MR** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppSize** oSizeROI, **Npp8u** *pMinValue, **Npp8u** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

1-channel 8-bit unsigned char image minimum and maximum values with their indices, [Masked Operation](#).

- **NppStatus nppiMinMaxIdx_8s_C1MR** (const **Npp8s** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppSize** oSizeROI, **Npp8s** *pMinValue, **Npp8s** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

1-channel 8-bit signed char image minimum and maximum values with their indices, [Masked Operation](#).

- **NppStatus nppiMinMaxIdx_16u_C1MR** (const **Npp16u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppSize** oSizeROI, **Npp16u** *pMinValue, **Npp16u** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

1-channel 16-bit unsigned short image minimum and maximum values with their indices, [Masked Operation](#).

- **NppStatus nppiMinMaxIdx_32f_C1MR** (const **Npp32f** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppSize** oSizeROI, **Npp32f** *pMinValue, **Npp32f** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

1-channel 32-bit floating point image minimum and maximum values with their indices, [Masked Operation](#).

- **NppStatus nppiMinMaxIdx_8u_C3CR** (const **Npp8u** *pSrc, int nSrcStep, **NppSize** oSizeROI, int nCOI, **Npp8u** *pMinValue, **Npp8u** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

3-channel 8-bit unsigned char image minimum and maximum values with their indices, [Channel-of-Interest API](#).

- **NppStatus nppiMinMaxIdx_8s_C3CR** (const **Npp8s** *pSrc, int nSrcStep, **NppSize** oSizeROI, int nCOI, **Npp8s** *pMinValue, **Npp8s** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

3-channel 8-bit signed char image minimum and maximum values with their indices, [Channel-of-Interest API](#).

- **NppStatus nppiMinMaxIdx_16u_C3CR** (const **Npp16u** *pSrc, int nSrcStep, **NppSize** oSizeROI, int nCOI, **Npp16u** *pMinValue, **Npp16u** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

1-channel 16-bit unsigned short image minimum and maximum values with their indices, [Channel-of-Interest API](#).

- **NppStatus nppiMinMaxIdx_32f_C3CR** (const **Npp32f** *pSrc, int nSrcStep, **NppSize** oSizeROI, int nCOI, **Npp32f** *pMinValue, **Npp32f** *pMaxValue, **NppPoint** *pMinIndex, **NppPoint** *pMaxIndex, **Npp8u** *pDeviceBuffer)

1-channel 32-bit floating point image minimum and maximum values with their indices, [Channel-of-Interest API](#).

- **NppStatus nppiMinMaxIdx_8u_C3CMR** (const **Npp8u** **pSrc*, int *nSrcStep*, const **Npp8u** **pMask*, int *nMaskStep*, **NppiSize** *oSizeROI*, int *nCOI*, **Npp8u** **pMinValue*, **Npp8u** **pMaxValue*, **NppiPoint** **pMinIndex*, **NppiPoint** **pMaxIndex*, **Npp8u** **pDeviceBuffer*)

3-channel 8-bit unsigned char image minimum and maximum values with their indices, [Masked Operation](#), [Channel-of-Interest API](#).

- **NppStatus nppiMinMaxIdx_8s_C3CMR** (const **Npp8s** **pSrc*, int *nSrcStep*, const **Npp8u** **pMask*, int *nMaskStep*, **NppiSize** *oSizeROI*, int *nCOI*, **Npp8s** **pMinValue*, **Npp8s** **pMaxValue*, **NppiPoint** **pMinIndex*, **NppiPoint** **pMaxIndex*, **Npp8u** **pDeviceBuffer*)

3-channel 8-bit signed char image minimum and maximum values with their indices, [Masked Operation](#), [Channel-of-Interest API](#).

- **NppStatus nppiMinMaxIdx_16u_C3CMR** (const **Npp16u** **pSrc*, int *nSrcStep*, const **Npp8u** **pMask*, int *nMaskStep*, **NppiSize** *oSizeROI*, int *nCOI*, **Npp16u** **pMinValue*, **Npp16u** **pMaxValue*, **NppiPoint** **pMinIndex*, **NppiPoint** **pMaxIndex*, **Npp8u** **pDeviceBuffer*)

3-channel 16-bit unsigned short image minimum and maximum values with their indices, [Masked Operation](#), [Channel-of-Interest API](#).

- **NppStatus nppiMinMaxIdx_32f_C3CMR** (const **Npp32f** **pSrc*, int *nSrcStep*, const **Npp8u** **pMask*, int *nMaskStep*, **NppiSize** *oSizeROI*, int *nCOI*, **Npp32f** **pMinValue*, **Npp32f** **pMaxValue*, **NppiPoint** **pMinIndex*, **NppiPoint** **pMaxIndex*, **Npp8u** **pDeviceBuffer*)

3-channel 32-bit floating point image minimum and maximum values with their indices, [Masked Operation](#), [Channel-of-Interest API](#).

7.79.1 Function Documentation

7.79.1.1 NppStatus nppiMinMax_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, **NppiSize** *oSizeROI*, Npp16s *aMin*[3], Npp16s *aMax*[3], Npp8u * *pDeviceBuffer*)

4-channel 16-bit signed short image minimum and maximum values (alpha channel is not calculated).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aMin Device-memory array receiving the minimum result, three elements for the first three channels.

aMax Device-memory array receiving the maximum result, three elements for the first three channels.

pDeviceBuffer Buffer to a scratch memory. Use **nppiMinMaxGetBufferSize_16s_AC4R** to determine the minimum number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.2 NppStatus nppiMinMax_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp16s * *pMin*, Npp16s * *pMax*, Npp8u * *pDeviceBuffer*)

1-channel 16-bit signed short image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMin Device-memory pointer receiving the minimum result.
pMax Device-memory pointer receiving the maximum result.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_16s_C1R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.3 NppStatus nppiMinMax_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp16s *aMin*[3], Npp16s *aMax*[3], Npp8u * *pDeviceBuffer*)

3-channel 16-bit signed short image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aMin Device-memory array receiving the minimum result, three elements for three channels.
aMax Device-memory array receiving the maximum result, three elements for three channels.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_16s_C3R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.4 NppStatus nppiMinMax_16s_C4R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp16s *aMin*[4], Npp16s *aMax*[4], Npp8u * *pDeviceBuffer*)

4-channel 16-bit signed short image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aMin Device-memory array receiving the minimum result, four elements for four channels.

aMax Device-memory array receiving the maximum result, four elements for four channels.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_16s_C4R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.5 NppStatus nppiMinMax_16u_AC4R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *nSizeROI*, Npp16u *aMin*[3], Npp16u *aMax*[3], Npp8u * *pDeviceBuffer*)

4-channel 16-bit unsigned short image minimum and maximum values (alpha channel is not calculated).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nSizeROI Region-of-Interest (ROI).

aMin Device-memory array receiving the minimum result, three elements for the first three channels.

aMax Device-memory array receiving the maximum result, three elements for the first three channels.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_16u_AC4R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.6 NppStatus nppiMinMax_16u_C1R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *nSizeROI*, Npp16u * *pMin*, Npp16u * *pMax*, Npp8u * *pDeviceBuffer*)

1-channel 16-bit unsigned short image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nSizeROI Region-of-Interest (ROI).

pMin Device-memory pointer receiving the minimum result.

pMax Device-memory pointer receiving the maximum result.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_16u_C1R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.7 NppStatus nppiMinMax_16u_C3R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp16u aMin[3], Npp16u aMax[3], Npp8u * pDeviceBuffer)

3-channel 16-bit unsigned short image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aMin Device-memory array receiving the minimum result, three elements for three channels.

aMax Device-memory array receiving the maximum result, three elements for three channels.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_16u_C3R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.8 NppStatus nppiMinMax_16u_C4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp16u aMin[4], Npp16u aMax[4], Npp8u * pDeviceBuffer)

4-channel 16-bit unsigned short image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aMin Device-memory array receiving the minimum result, four elements for four channels.

aMax Device-memory array receiving the maximum result, four elements for four channels.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_16u_C4R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.9 NppStatus nppiMinMax_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32f aMin[3], Npp32f aMax[3], Npp8u * pDeviceBuffer)

4-channel 32-bit floating point image minimum and maximum values (alpha channel is not calculated).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aMin Device-memory array receiving the minimum result, three elements for the first three channels.

aMax Device-memory array receiving the maximum result, three elements for the first three channels.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_32f_AC4R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.10 NppStatus nppiMinMax_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32f * pMin, Npp32f * pMax, Npp8u * pDeviceBuffer)

1-channel 32-bit floating point image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMin Device-memory pointer receiving the minimum result.

pMax Device-memory pointer receiving the maximum result.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_32f_C1R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.11 NppStatus nppiMinMax_32f_C3R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32f aMin[3], Npp32f aMax[3], Npp8u * pDeviceBuffer)

3-channel 32-bit floating point image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aMin Device-memory array receiving the minimum result, three elements for three channels..

aMax Device-memory array receiving the maximum result, three elements for three channels..

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_32f_C3R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.12 NppStatus nppiMinMax_32f_C4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32f aMin[4], Npp32f aMax[4], Npp8u * pDeviceBuffer)

4-channel 32-bit floating point image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aMin Device-memory array receiving the minimum result, four elements for four channels.
aMax Device-memory array receiving the maximum result, four elements for four channels.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_32f_C4R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.13 NppStatus nppiMinMax_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u aMin[3], Npp8u aMax[3], Npp8u * pDeviceBuffer)

4-channel 8-bit unsigned image minimum and maximum values (alpha channel is not calculated).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aMin Device-memory array receiving the minimum result, three elements for the first three channels.
aMax Device-memory array receiving the maximum result, three elements for the first three channels.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_8u_AC4R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.14 NppStatus nppiMinMax_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pMin, Npp8u * pMax, Npp8u * pDeviceBuffer)

1-channel 8-bit unsigned image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMin Device-memory pointer receiving the minimum result.

pMax Device-memory pointer receiving the maximum result.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_8u_C1R](#) to determine the minimum number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.15 NppStatus nppiMinMax_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u *aMin*[3], Npp8u *aMax*[3], Npp8u * *pDeviceBuffer*)

3-channel 8-bit unsigned image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aMin Device-memory array receiving the minimum result, three elements for three channels.

aMax Device-memory array receiving the maximum result, three elements for three channels.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_8u_C3R](#) to determine the minimum number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.16 NppStatus nppiMinMax_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u *aMin*[4], Npp8u *aMax*[4], Npp8u * *pDeviceBuffer*)

4-channel 8-bit unsigned image minimum and maximum values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aMin Device-memory array receiving the minimum result, four elements for four channels.

aMax Device-memory array receiving the maximum result, four elements for four channels.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxGetBufferSize_8u_C4R](#) to determine the minimum number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.79.1.17 NppStatus nppiMinMaxGetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_16s_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.18 NppStatus nppiMinMaxGetBufferSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.19 NppStatus nppiMinMaxGetBufferSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.20 NppStatus nppiMinMaxGetBufferSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.21 NppStatus nppiMinMaxGetBufferHostSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.22 NppStatus nppiMinMaxGetBufferHostSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.23 NppStatus nppiMinMaxGetBufferHostSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.24 NppStatus nppiMinMaxGetBufferHostSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.25 NppStatus nppiMinMaxGetBufferHostSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.26 NppStatus nppiMinMaxGetBufferHostSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.27 NppStatus nppiMinMaxGetBufferHostSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.28 NppStatus nppiMinMaxGetBufferHostSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.29 NppStatus nppiMinMaxGetBufferHostSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.30 NppStatus nppiMinMaxGetBufferHostSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.31 NppStatus nppiMinMaxGetBufferSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.32 NppStatus nppiMinMaxGetBufferSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinManx_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.33 NppStatus nppiMinMaxIdx_16u_C1MR (const Npp16u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, Npp16u * *pMinValue*, Npp16u * *pMaxValue*, NppiPoint * *pMinIndex*, NppiPoint * *pMaxIndex*, Npp8u * *pDeviceBuffer*)

1-channel 16-bit unsigned short image minimum and maximum values with their indices, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMinValue Device-memory pointer receiving the minimum value.

pMaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indices (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indices (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_16u_C1MR](#) to determine the minimum number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#). If the mask is filled with zeros, then all the returned values are zeros, i.e., pMinIndex = {0, 0}, pMaxIndex = {0, 0}, pMinValue = 0, pMaxValue = 0. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.34 NppStatus nppiMinMaxIdx_16u_C1R (const Npp16u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp16u **pMinValue*, Npp16u **pMaxValue*, NppiPoint **pMinIndex*, NppiPoint **pMaxIndex*, Npp8u **pDeviceBuffer*)

1-channel 16-bit unsigned short image minimum and maximum values with their indices.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMinValue Device-memory pointer receiving the minimum value.

pMaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_16u_C1R](#) to determine the minimum number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#). If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.35 NppStatus nppiMinMaxIdx_16u_C3CMR (const Npp16u **pSrc*, int *nSrcStep*, const Npp8u **pMask*, int *nMaskStep*, NppiSize *oSizeROI*, int *nCOI*, Npp16u **pMinValue*, Npp16u **pMaxValue*, NppiPoint **pMinIndex*, NppiPoint **pMaxIndex*, Npp8u **pDeviceBuffer*)

3-channel 16-bit unsigned short image minimum and maximum values with their indices, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pMinValue Device-memory pointer receiving the minimum value.

p.MaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_16u_C3CMR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified. If the mask is filled with zeros, then all the returned values are zeros, i.e., pMinIndex = {0, 0}, pMaxIndex = {0, 0}, pMinValue = 0, pMaxValue = 0. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.36 NppStatus nppiMinMaxIdx_16u_C3CR (const Npp16u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, int *nCOI*, Npp16u **pMinValue*, Npp16u **pMaxValue*, NppiPoint **pMinIndex*, NppiPoint **pMaxIndex*, Npp8u **pDeviceBuffer*)

1-channel 16-bit unsigned short image minimum and maximum values with their indices, [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pMinValue Device-memory pointer receiving the minimum value.

p.MaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_16u_C3CR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.37 NppStatus nppiMinMaxIdx_32f_C1MR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp32f * pMinValue, Npp32f * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)

1-channel 32-bit floating point image minimum and maximum values with their indices, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMinValue Device-memory pointer receiving the minimum value.
pMaxValue Device-memory pointer receiving the maximum value.
pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.
pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_32f_C1MR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_NOT EVEN STEP ERROR](#) if an invalid floating-point image is specified. If the mask is filled with zeros, then all the returned values are zeros, i.e., pMinIndex = {0, 0}, pMaxIndex = {0, 0}, pMinValue = 0, pMaxValue = 0. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.38 NppStatus nppiMinMaxIdx_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32f * pMinValue, Npp32f * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)

1-channel 32-bit floating point image minimum and maximum values with their indices.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMinValue Device-memory pointer receiving the minimum value.
pMaxValue Device-memory pointer receiving the maximum value.
pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.
pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_32f_C1R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or `NPP_NOT EVEN STEP ERROR` if an invalid floating-point image is specified. If any of `pMinValue`, `pMaxValue`, `pMinIndex`, or `pMaxIndex` is not needed, zero pointer must be passed correspondingly.

7.79.1.39 `NppStatus nppiMinMaxIdx_32f_C3CMR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp32f * pMinValue, Npp32f * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)`

3-channel 32-bit floating point image minimum and maximum values with their indices, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`pMask` Mask-Image Pointer.

`nMaskStep` Mask-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

`nCOI` Channel_of_Interest Number.

`pMinValue` Device-memory pointer receiving the minimum value.

`pMaxValue` Device-memory pointer receiving the maximum value.

`pMinIndex` Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

`pMaxIndex` Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

`pDeviceBuffer` Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_32f_C3CMR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), `NPP_NOT EVEN STEP ERROR` if an invalid floating-point image is specified, or `NPP_COI_ERROR` if an invalid channel of interest is specified. If the mask is filled with zeros, then all the returned values are zeros, i.e., `pMinIndex` = {0, 0}, `pMaxIndex` = {0, 0}, `pMinValue` = 0, `pMaxValue` = 0. If any of `pMinValue`, `pMaxValue`, `pMinIndex`, or `pMaxIndex` is not needed, zero pointer must be passed correspondingly.

7.79.1.40 `NppStatus nppiMinMaxIdx_32f_C3CR (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, int nCOI, Npp32f * pMinValue, Npp32f * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)`

1-channel 32-bit floating point image minimum and maximum values with their indices, [Channel-of-Interest API](#).

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pMinValue Device-memory pointer receiving the minimum value.

pMaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_32f_C3CR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified, or NPP_COI_ERROR if an invalid channel of interest is specified. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.41 NppStatus nppiMinMaxIdx_8s_C1MR (const Npp8s **pSrc*, int *nSrcStep*, const Npp8u **pMask*, int *nMaskStep*, NppiSize *oSizeROI*, Npp8s **pMinValue*, Npp8s **pMaxValue*, NppiPoint **pMinIndex*, NppiPoint **pMaxIndex*, Npp8u **pDeviceBuffer*)

1-channel 8-bit signed char image minimum and maximum values with their indices, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMinValue Device-memory pointer receiving the minimum value.

pMaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_8s_C1MR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#). If the mask is filled with zeros, then all the returned values are zeros, i.e., pMinIndex = {0, 0}, pMaxIndex = {0, 0}, pMinValue = 0, pMaxValue = 0. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.42 NppStatus nppiMinMaxIdx_8s_C1R (const Npp8s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8s * pMinValue, Npp8s * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)

1-channel 8-bit signed char image minimum and maximum values with their indices.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pMinValue Device-memory pointer receiving the minimum value.
pMaxValue Device-memory pointer receiving the maximum value.
pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.
pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_8s_C1R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#). If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.43 NppStatus nppiMinMaxIdx_8s_C3CMR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp8s * pMinValue, Npp8s * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)

3-channel 8-bit signed char image minimum and maximum values with their indices, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nCOI Channel_of_Interest Number.
pMinValue Device-memory pointer receiving the minimum value.
pMaxValue Device-memory pointer receiving the maximum value.
pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.
pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_8s_C3CMR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified. If the mask is filled with zeros, then all the returned values are zeros, i.e., pMinIndex = {0, 0}, pMaxIndex = {0, 0}, pMinValue = 0, pMaxValue = 0. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.44 NppStatus nppiMinMaxIdx_8s_C3CR (const Npp8s * pSrc, int nSrcStep, NppiSize oSizeROI, int nCOI, Npp8s * pMinValue, Npp8s * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)

3-channel 8-bit signed char image minimum and maximum values with their indices, [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pMinValue Device-memory pointer receiving the minimum value.

pMaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_8s_C3CR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.45 NppStatus nppiMinMaxIdx_8u_C1MR (const Npp8u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp8u * pMinValue, Npp8u * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)

1-channel 8-bit unsigned char image minimum and maximum values with their indices, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMinValue Device-memory pointer receiving the minimum value.

pMaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_8u_C1MR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#). If the mask is filled with zeros, then all the returned values are zeros, i.e., pMinIndex = {0, 0}, pMaxIndex = {0, 0}, pMinValue = 0, pMaxValue = 0. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.46 NppStatus nppiMinMaxIdx_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pMinValue, Npp8u * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)

1-channel 8-bit unsigned char image minimum and maximum values with their indices.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pMinValue Device-memory pointer receiving the minimum value.

pMaxValue Device-memory pointer receiving the maximum value.

pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.

pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.

pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_8u_C1R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#). If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.47 NppStatus nppiMinMaxIdx_8u_C3CMR (const Npp8u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp8u * pMinValue, Npp8u * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)

3-channel 8-bit unsigned char image minimum and maximum values with their indices, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nCOI Channel_of_Interest Number.
pMinValue Device-memory pointer receiving the minimum value.
pMaxValue Device-memory pointer receiving the maximum value.
pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.
pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_8u_C3CMR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified. If the mask is filled with zeros, then all the returned values are zeros, i.e., pMinIndex = {0, 0}, pMaxIndex = {0, 0}, pMinValue = 0, pMaxValue = 0. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.48 **NppStatus nppiMinMaxIdx_8u_C3CR (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, int nCOI, Npp8u * pMinValue, Npp8u * pMaxValue, NppiPoint * pMinIndex, NppiPoint * pMaxIndex, Npp8u * pDeviceBuffer)**

3-channel 8-bit unsigned char image minimum and maximum values with their indices, [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nCOI Channel_of_Interest Number.
pMinValue Device-memory pointer receiving the minimum value.
pMaxValue Device-memory pointer receiving the maximum value.
pMinIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the minimum value.
pMaxIndex Device-memory pointer receiving the indicies (X and Y coordinates) of the maximum value.
pDeviceBuffer Buffer to a scratch memory. Use [nppiMinMaxIdxGetBufferSize_8u_C3CR](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified. If any of pMinValue, pMaxValue, pMinIndex, or pMaxIndex is not needed, zero pointer must be passed correspondingly.

7.79.1.49 NppStatus nppiMinMaxIdxGetBufferHostSize_16u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_16u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.50 NppStatus nppiMinMaxIdxGetBufferHostSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.51 NppStatus nppiMinMaxIdxGetBufferHostSize_16u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_16u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.52 NppStatus nppiMinMaxIdxGetBufferHostSize_16u_C3CR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_16u_C3CR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.53 NppStatus nppiMinMaxIdxGetBufferHostSize_32f_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_32f_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.54 NppStatus nppiMinMaxIdxGetBufferHostSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.55 NppStatus nppiMinMaxIdxGetBufferHostSize_32f_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_32f_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.56 NppStatus nppiMinMaxIdxGetBufferHostSize_32f_C3CR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_32f_C3CR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.57 NppStatus nppiMinMaxIdxGetBufferHostSize_8s_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8s_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.58 NppStatus nppiMinMaxIdxGetBufferHostSize_8s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.59 NppStatus nppiMinMaxIdxGetBufferHostSize_8s_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8s_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.60 NppStatus nppiMinMaxIdxGetBufferHostSize_8s_C3CR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8s_C3CR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.61 NppStatus nppiMinMaxIdxGetBufferHostSize_8u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.62 NppStatus nppiMinMaxIdxGetBufferHostSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.63 NppStatus nppiMinMaxIdxGetBufferSize_8u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.79.1.64 NppStatus nppiMinMaxIdxGetBufferSize_8u_C3CR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMinMaxIdx_8u_C3CR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80 Mean

Mean

The functions compute the mean value of all the pixel values in an image.

All the mean results are stored in a 64-bit double precision format. If the image contains multiple channels, the functions calculate the mean for each channel separately. The mean functions require additional scratch buffer for computations.

- **NppStatus nppiMeanGetBufferSize_8u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_8u_C1R.
- **NppStatus nppiMeanGetBufferSize_16u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_16u_C1R.
- **NppStatus nppiMeanGetBufferSize_16s_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_16s_C1R.
- **NppStatus nppiMeanGetBufferSize_32f_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_32f_C1R.
- **NppStatus nppiMeanGetBufferSize_8u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_8u_C3R.
- **NppStatus nppiMeanGetBufferSize_16u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_16u_C3R.
- **NppStatus nppiMeanGetBufferSize_16s_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_16s_C3R.
- **NppStatus nppiMeanGetBufferSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_32f_C3R.
- **NppStatus nppiMeanGetBufferSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_8u_AC4R.
- **NppStatus nppiMeanGetBufferSize_16u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_16u_AC4R.
- **NppStatus nppiMeanGetBufferSize_16s_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_16s_AC4R.
- **NppStatus nppiMeanGetBufferSize_32f_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_32f_AC4R.
- **NppStatus nppiMeanGetBufferSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiMean_8u_C4R.
- **NppStatus nppiMeanGetBufferSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**

Device scratch buffer size (in bytes) for nppiMean_16u_C4R.

- [NppStatus nppiMeanGetBufferHostSize_16s_C4R](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_16s_C4R.
- [NppStatus nppiMeanGetBufferHostSize_32f_C4R](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_32f_C4R.
- [NppStatus nppiMeanGetBufferHostSize_8u_C1MR](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_8u_C1MR.
- [NppStatus nppiMeanGetBufferHostSize_8s_C1MR](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_8s_C1MR.
- [NppStatus nppiMeanGetBufferHostSize_16u_C1MR](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_16u_C1MR.
- [NppStatus nppiMeanGetBufferHostSize_32f_C1MR](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_32f_C1MR.
- [NppStatus nppiMeanGetBufferHostSize_8u_C3CMR](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_8u_C3CMR.
- [NppStatus nppiMeanGetBufferHostSize_8s_C3CMR](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_8s_C3CMR.
- [NppStatus nppiMeanGetBufferHostSize_16u_C3CMR](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_16u_C3CMR.
- [NppStatus nppiMeanGetBufferHostSize_32f_C3CMR](#) (`NppiSize oSizeROI, int *hpBufferSize`)
Device scratch buffer size (in bytes) for nppiMean_32f_C3CMR.
- [NppStatus nppiMean_8u_C1R](#) (`const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f *pMean`)
1-channel 8-bit unsigned char image sum with 64-bit double precision result.
- [NppStatus nppiMean_16u_C1R](#) (`const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f *pMean`)
1-channel 16-bit unsigned short integer image mean with 64-bit double precision result.
- [NppStatus nppiMean_16s_C1R](#) (`const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f *pMean`)
1-channel 16-bit signed short integer image mean with 64-bit double precision result.
- [NppStatus nppiMean_32f_C1R](#) (`const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f *pMean`)
1-channel 32-bit floating point image mean with 64-bit double precision result.
- [NppStatus nppiMean_8u_C3R](#) (`const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u *pDeviceBuffer, Npp64f aMean[3]`)

3-channel 8-bit unsigned char image mean with 64-bit double precision result.

- **NppStatus nppiMean_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[3])

3-channel 16-bit unsigned short image mean with 64-bit double precision result.

- **NppStatus nppiMean_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[3])

3-channel 16-bit signed short image mean with 64-bit double precision result.

- **NppStatus nppiMean_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[3])

3-channel 32-bit floating point image mean with 64-bit double precision result.

- **NppStatus nppiMean_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[3])

4-channel 8-bit unsigned char image mean with 64-bit double precision result.

- **NppStatus nppiMean_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[3])

4-channel 16-bit unsigned short image mean with 64-bit double precision result.

- **NppStatus nppiMean_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[3])

4-channel 16-bit signed short image mean with 64-bit double precision result.

- **NppStatus nppiMean_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[3])

4-channel 32-bit floating point image mean with 64-bit double precision result.

- **NppStatus nppiMean_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[4])

4-channel 8-bit unsigned char image mean with 64-bit double precision result.

- **NppStatus nppiMean_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[4])

4-channel 16-bit unsigned short image mean with 64-bit double precision result.

- **NppStatus nppiMean_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[4])

4-channel 16-bit signed short image mean with 64-bit double precision result.

- **NppStatus nppiMean_32f_C4R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** aMean[4])

4-channel 32-bit floating point image mean with 64-bit double precision result.

- **NppStatus nppiMean_8u_C1MR** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean)

*1-channel 8-bit unsigned char image mean with 64-bit double precision result, **Masked Operation**.*

- `NppStatus nppiMean_8s_C1MR` (`const Npp8s *pSrc`, `int nSrcStep`, `const Npp8u *pMask`, `int nMaskStep`, `NppiSize oSizeROI`, `Npp8u *pDeviceBuffer`, `Npp64f *pMean`)
1-channel 8-bit signed char image mean with 64-bit double precision result, [Masked Operation](#).
- `NppStatus nppiMean_16u_C1MR` (`const Npp16u *pSrc`, `int nSrcStep`, `const Npp8u *pMask`, `int nMaskStep`, `NppiSize oSizeROI`, `Npp8u *pDeviceBuffer`, `Npp64f *pMean`)
1-channel 16-bit unsigned short integer image mean with 64-bit double precision result, [Masked Operation](#).
- `NppStatus nppiMean_32f_C1MR` (`const Npp32f *pSrc`, `int nSrcStep`, `const Npp8u *pMask`, `int nMaskStep`, `NppiSize oSizeROI`, `Npp8u *pDeviceBuffer`, `Npp64f *pMean`)
1-channel 32-bit floating point image mean with 64-bit double precision result, [Masked Operation](#).
- `NppStatus nppiMean_8u_C3CMR` (`const Npp8u *pSrc`, `int nSrcStep`, `const Npp8u *pMask`, `int nMaskStep`, `NppiSize oSizeROI`, `int nCOI`, `Npp8u *pDeviceBuffer`, `Npp64f *pMean`)
3-channel 8-bit unsigned char image mean with 64-bit double precision result, [Masked Operation](#), [Channel-of-Interest API](#).
- `NppStatus nppiMean_8s_C3CMR` (`const Npp8s *pSrc`, `int nSrcStep`, `const Npp8u *pMask`, `int nMaskStep`, `NppiSize oSizeROI`, `int nCOI`, `Npp8u *pDeviceBuffer`, `Npp64f *pMean`)
3-channel 8-bit signed char image mean with 64-bit double precision result, [Masked Operation](#), [Channel-of-Interest API](#).
- `NppStatus nppiMean_16u_C3CMR` (`const Npp16u *pSrc`, `int nSrcStep`, `const Npp8u *pMask`, `int nMaskStep`, `NppiSize oSizeROI`, `int nCOI`, `Npp8u *pDeviceBuffer`, `Npp64f *pMean`)
3-channel 16-bit unsigned short integer image mean with 64-bit double precision result, [Masked Operation](#), [Channel-of-Interest API](#).
- `NppStatus nppiMean_32f_C3CMR` (`const Npp32f *pSrc`, `int nSrcStep`, `const Npp8u *pMask`, `int nMaskStep`, `NppiSize oSizeROI`, `int nCOI`, `Npp8u *pDeviceBuffer`, `Npp64f *pMean`)
3-channel 32-bit floating point image mean with 64-bit double precision result, [Masked Operation](#), [Channel-of-Interest API](#).

7.80.1 Function Documentation

7.80.1.1 `NppStatus nppiMean_16s_AC4R` (`const Npp16s *pSrc`, `int nSrcStep`, `NppiSize oSizeROI`, `Npp8u *pDeviceBuffer`, `Npp64f aMean[3]`)

4-channel 16-bit signed short image mean with 64-bit double precision result.

Alpha channel is the last channel and is not processed.

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

`pDeviceBuffer` Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use](#) `nppiMeanGetBufferSize_16s_AC4R` to determine the minimum number of bytes required.

`aMean` Array that contains computed mean, three elements for the first three channels.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.80.1.2 NppStatus nppiMean_16s_C1R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean)

1-channel 16-bit signed short integer image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_16s_C1R](#) to determine the minium number of bytes required.

pMean Device-memory pointer receiving the mean result.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.80.1.3 NppStatus nppiMean_16s_C3R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f aMean[3])

3-channel 16-bit signed short image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_16s_C3R](#) to determine the minium number of bytes required.

aMean Array that contains computed mean, three elements for three channels.

7.80.1.4 NppStatus nppiMean_16s_C4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f aMean[4])

4-channel 16-bit signed short image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_16s_C4R](#) to determine the minium number of bytes required.

aMean Array that contains computed mean, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.5 NppStatus nppiMean_16u_AC4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f aMean[3])

4-channel 16-bit unsigned short image mean with 64-bit double precision result.

Alpha channel is the last channel and is not processed.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanGetBufferSize_16u_AC4R](#) to determine the minium number of bytes required.

aMean Array that contains computed mean, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.6 NppStatus nppiMean_16u_C1MR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean)

1-channel 16-bit unsigned short integer image mean with 64-bit double precision result, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanGetBufferSize_16u_C1MR](#) to determine the minium number of bytes required.

pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.80.1.7 NppStatus nppiMean_16u_C1R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f * *pMean*)

1-channel 16-bit unsigned short integer image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use](#) [nppiMeanGetBufferSize_16u_C1R](#) to determine the minium number of bytes required.

pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.8 NppStatus nppiMean_16u_C3CMR (const Npp16u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, int *nCOI*, Npp8u * *pDeviceBuffer*, Npp64f * *pMean*)

3-channel 16-bit unsigned short integer image mean with 64-bit double precision result, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use](#) [nppiMeanGetBufferSize_16u_C3CMR](#) to determine the minium number of bytes required.

pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.80.1.9 NppStatus nppiMean_16u_C3R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aMean[3]*)

3-channel 16-bit unsigned short image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_16u_C3R](#) to determine the minimum number of bytes required.

aMean Array that contains computed mean, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.10 NppStatus nppiMean_16u_C4R (const Npp16u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u **pDeviceBuffer*, Npp64f *aMean*[4])

4-channel 16-bit unsigned short image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_16u_C4R](#) to determine the minimum number of bytes required.

aMean Array that contains computed mean, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.11 NppStatus nppiMean_32f_AC4R (const Npp32f **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u **pDeviceBuffer*, Npp64f *aMean*[3])

4-channel 32-bit floating point image mean with 64-bit double precision result.

Alpha channel is the last channel and is not processed.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_32f_AC4R](#) to determine the minimum number of bytes required.

aMean Array that contains computed mean, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT_EVEN_STEP_ERROR if an invalid floating-point image is specified.

7.80.1.12 NppStatus nppiMean_32f_C1MR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean)

1-channel 32-bit floating point image mean with 64-bit double precision result, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanGetBufferSize_32f_C1MR](#) to determine the minium number of bytes required.
pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT_EVEN_STEP_ERROR if an invalid floating-point image is specified.

7.80.1.13 NppStatus nppiMean_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean)

1-channel 32-bit floating point image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
pMean Device-memory pointer receiving the mean result. Use [nppiMeanGetBufferSize_32f_C1R](#) to determine the minium number of bytes required.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT_EVEN_STEP_ERROR if an invalid floating-point image is specified.

7.80.1.14 NppStatus nppiMean_32f_C3CMR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp8u * pDeviceBuffer, Npp64f * pMean)

3-channel 32-bit floating point image mean with 64-bit double precision result, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nCOI Channel_of_Interest Number.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_32f_C3CMR](#) to determine the minium number of bytes required.
pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified, or NPP_COI_ERROR if an invalid channel of interest is specified.

7.80.1.15 NppStatus nppiMean_32f_C3R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f aMean[3])

3-channel 32-bit floating point image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_32f_C3R](#) to determine the minium number of bytes required.
aMean Array that contains computed mean, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified.

7.80.1.16 NppStatus nppiMean_32f_C4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f aMean[4])

4-channel 32-bit floating point image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_32f_C4R](#) to determine the minium number of bytes required.
aMean Array that contains computed mean, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified.

7.80.1.17 NppStatus nppiMean_8s_C1MR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean)

1-channel 8-bit signed char image mean with 64-bit double precision result, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanGetBufferSize_8s_C1MR](#) to determine the minimum number of bytes required.

pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.80.1.18 NppStatus nppiMean_8s_C3CMR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp8u * pDeviceBuffer, Npp64f * pMean)

3-channel 8-bit signed char image mean with 64-bit double precision result, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanGetBufferSize_8s_C3CMR](#) to determine the minimum number of bytes required.

pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.80.1.19 NppStatus nppiMean_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aMean*[3])

4-channel 8-bit unsigned char image mean with 64-bit double precision result.

Alpha channel is the last channel and is not processed.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- pDeviceBuffer* Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_8u_AC4R](#) to determine the minimum number of bytes required.
- aMean* Array that contains computed mean, three elements for the first three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.20 NppStatus nppiMean_8u_C1MR (const Npp8u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f * *pMean*)

1-channel 8-bit unsigned char image mean with 64-bit double precision result, [Masked Operation](#).

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pMask* Mask-Image Pointer.
- nMaskStep* Mask-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- pDeviceBuffer* Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_8u_C1MR](#) to determine the minimum number of bytes required.
- pMean* Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.80.1.21 NppStatus nppiMean_8u_C1R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f * *pMean*)

1-channel 8-bit unsigned char image sum with 64-bit double precision result.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_8u_C1R](#) to determine the minimum number of bytes required.

pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.22 NppStatus nppiMean_8u_C3CMR (const Npp8u **pSrc*, int *nSrcStep*, const Npp8u **pMask*, int *nMaskStep*, NppiSize *oSizeROI*, int *nCOI*, Npp8u **pDeviceBuffer*, Npp64f **pMean*)

3-channel 8-bit unsigned char image mean with 64-bit double precision result, [Masked Operation, Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_8u_C3CMR](#) to determine the minimum number of bytes required.

pMean Device-memory pointer receiving the mean result.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified.

7.80.1.23 NppStatus nppiMean_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u **pDeviceBuffer*, Npp64f *aMean*[3])

3-channel 8-bit unsigned char image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer Use nppiMeanGetBufferSize_8u_C3R](#) to determine the minimum number of bytes required.

aMean Array that contains computed mean, three elements for three channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.24 NppStatus nppiMean_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f *aMean*[4])

4-channel 8-bit unsigned char image mean with 64-bit double precision result.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanGetBufferSize_8u_C4R](#) to determine the minimum number of bytes required.

aMean Array that contains computed mean, four elements for four channels.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.80.1.25 NppStatus nppiMeanGetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16s_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.26 NppStatus nppiMeanGetBufferSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.27 NppStatus nppiMeanGetBufferSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.28 NppStatus nppiMeanGetBufferSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.29 NppStatus nppiMeanGetBufferSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.30 NppStatus nppiMeanGetBufferSize_16u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.31 NppStatus nppiMeanGetBufferSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.32 NppStatus nppiMeanGetBufferSize_16u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.33 NppStatus nppiMeanGetBufferSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.34 NppStatus nppiMeanGetBufferSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.35 NppStatus nppiMeanGetBufferSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.36 NppStatus nppiMeanGetBufferSize_32f_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_32f_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.37 NppStatus nppiMeanGetBufferSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.38 NppStatus nppiMeanGetBufferSize_32f_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_32f_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.39 NppStatus nppiMeanGetBufferSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.40 NppStatus nppiMeanGetBufferSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.41 NppStatus nppiMeanGetBufferSize_8s_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_8s_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.42 NppStatus nppiMeanGetBufferSize_8s_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_8s_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.43 NppStatus nppiMeanGetBufferSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.44 NppStatus nppiMeanGetBufferSize_8u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_8u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.45 NppStatus nppiMeanGetBufferSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.46 NppStatus nppiMeanGetBufferSize_8u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_8u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.80.1.47 NppStatus nppiMeanGetBufferSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

**7.80.1.48 NppStatus nppiMeanGetBufferSize_8u_C4R (NppiSize *oSizeROI*, int *
hpBufferSize)**

Device scratch buffer size (in bytes) for nppiMean_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81 Mean And Standard Deviation

Mean and Standard Deviation

The routines compute the mean and standard deviation of image pixel values and store them in a 64-bit double precision format.

The functions require the additional device memroy for the computations.

- `NppStatus nppiMeanStdDevGetBufferSize_8u_C1R (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_8u_C1R.
- `NppStatus nppiMeanStdDevGetBufferSize_8s_C1R (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_8s_C1R.
- `NppStatus nppiMeanStdDevGetBufferSize_16u_C1R (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_16u_C1R.
- `NppStatus nppiMeanStdDevGetBufferSize_32f_C1R (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_32f_C1R.
- `NppStatus nppiMeanStdDevGetBufferSize_8u_C1MR (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_8u_C1MR.
- `NppStatus nppiMeanStdDevGetBufferSize_8s_C1MR (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_8s_C1MR.
- `NppStatus nppiMeanStdDevGetBufferSize_16u_C1MR (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_16u_C1MR.
- `NppStatus nppiMeanStdDevGetBufferSize_32f_C1MR (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_32f_C1MR.
- `NppStatus nppiMeanStdDevGetBufferSize_8u_C3CR (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_8u_C3CR.
- `NppStatus nppiMeanStdDevGetBufferSize_8s_C3CR (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_8s_C3CR.
- `NppStatus nppiMeanStdDevGetBufferSize_16u_C3CR (NppiSize oSizeROI, int *hpBufferSize)`
Device scratch buffer size (in bytes) for nppiMean_StdDev_16u_C3CR.

- **NppStatus nppiMeanStdDevGetBufferSize_32f_C3CR** (**NppiSize** oSizeROI, **int***hpBufferSize)

Device scratch buffer size (in bytes) for nppiMean_StdDev_32f_C3CR.

- **NppStatus nppiMeanStdDevGetBufferSize_8u_C3CMR** (**NppiSize** oSizeROI, **int***hpBufferSize)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8u_C3CMR.

- **NppStatus nppiMeanStdDevGetBufferSize_8s_C3CMR** (**NppiSize** oSizeROI, **int***hpBufferSize)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8s_C3CMR.

- **NppStatus nppiMeanStdDevGetBufferSize_16u_C3CMR** (**NppiSize** oSizeROI, **int***hpBufferSize)

Device scratch buffer size (in bytes) for nppiMean_StdDev_16u_C3CMR.

- **NppStatus nppiMeanStdDevGetBufferSize_32f_C3CMR** (**NppiSize** oSizeROI, **int***hpBufferSize)

Device scratch buffer size (in bytes) for nppiMean_StdDev_32f_C3CMR.

- **NppStatus nppiMean_StdDev_8u_C1R** (**const Npp8u** *pSrc, **int** nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean, **Npp64f** *pStdDev)

1-channel 8-bit unsigned char image mean and standard deviation.

- **NppStatus nppiMean_StdDev_8s_C1R** (**const Npp8s** *pSrc, **int** nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean, **Npp64f** *pStdDev)

1-channel 8-bit signed char image mean and standard deviation.

- **NppStatus nppiMean_StdDev_16u_C1R** (**const Npp16u** *pSrc, **int** nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean, **Npp64f** *pStdDev)

1-channel 16-bit unsigned short int image mean and standard deviation.

- **NppStatus nppiMean_StdDev_32f_C1R** (**const Npp32f** *pSrc, **int** nSrcStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean, **Npp64f** *pStdDev)

1-channel 32-bit floating-point image mean and standard deviation.

- **NppStatus nppiMean_StdDev_8u_C1MR** (**const Npp8u** *pSrc, **int** nSrcStep, **const Npp8u** *pMask, **int** nMaskStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean, **Npp64f** *pStdDev)

1-channel 8-bit unsigned char image mean and standard deviation, [Masked Operation](#).

- **NppStatus nppiMean_StdDev_8s_C1MR** (**const Npp8s** *pSrc, **int** nSrcStep, **const Npp8u** *pMask, **int** nMaskStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean, **Npp64f** *pStdDev)

1-channel 8-bit signed char image mean and standard deviation, [Masked Operation](#).

- **NppStatus nppiMean_StdDev_16u_C1MR** (**const Npp16u** *pSrc, **int** nSrcStep, **const Npp8u** *pMask, **int** nMaskStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean, **Npp64f** *pStdDev)

1-channel 16-bit unsigned short int image mean and standard deviation, [Masked Operation](#).

- **NppStatus nppiMean_StdDev_32f_C1MR** (**const Npp32f** *pSrc, **int** nSrcStep, **const Npp8u** *pMask, **int** nMaskStep, **NppiSize** oSizeROI, **Npp8u** *pDeviceBuffer, **Npp64f** *pMean, **Npp64f** *pStdDev)

1-channel 32-bit floating-point image mean and standard deviation, [Masked Operation](#).

- **NppStatus nppiMean_StdDev_8u_C3CR** (const **Npp8u** ***pSrc**, int **nSrcStep**, **NppiSize** **oSizeROI**, int **nCOI**, **Npp8u** ***pDeviceBuffer**, **Npp64f** ***pMean**, **Npp64f** ***pStdDev**)

3-channel 8-bit unsigned char image mean and standard deviation, [Channel-of-Interest API](#).

- **NppStatus nppiMean_StdDev_8s_C3CR** (const **Npp8s** ***pSrc**, int **nSrcStep**, **NppiSize** **oSizeROI**, int **nCOI**, **Npp8u** ***pDeviceBuffer**, **Npp64f** ***pMean**, **Npp64f** ***pStdDev**)

3-channel 8-bit signed char image mean and standard deviation, [Channel-of-Interest API](#).

- **NppStatus nppiMean_StdDev_16u_C3CR** (const **Npp16u** ***pSrc**, int **nSrcStep**, **NppiSize** **oSizeROI**, int **nCOI**, **Npp8u** ***pDeviceBuffer**, **Npp64f** ***pMean**, **Npp64f** ***pStdDev**)

3-channel 16-bit unsigned short int image mean and standard deviation, [Channel-of-Interest API](#).

- **NppStatus nppiMean_StdDev_32f_C3CR** (const **Npp32f** ***pSrc**, int **nSrcStep**, **NppiSize** **oSizeROI**, int **nCOI**, **Npp8u** ***pDeviceBuffer**, **Npp64f** ***pMean**, **Npp64f** ***pStdDev**)

3-channel 32-bit floating-point image mean and standard deviation, [Channel-of-Interest API](#).

- **NppStatus nppiMean_StdDev_8u_C3CMR** (const **Npp8u** ***pSrc**, int **nSrcStep**, const **Npp8u** ***pMask**, int **nMaskStep**, **NppiSize** **oSizeROI**, int **nCOI**, **Npp8u** ***pDeviceBuffer**, **Npp64f** ***pMean**, **Npp64f** ***pStdDev**)

3-channel 8-bit unsigned char image mean and standard deviation, [Masked Operation](#), [Channel-of-Interest API](#).

- **NppStatus nppiMean_StdDev_8s_C3CMR** (const **Npp8s** ***pSrc**, int **nSrcStep**, const **Npp8u** ***pMask**, int **nMaskStep**, **NppiSize** **oSizeROI**, int **nCOI**, **Npp8u** ***pDeviceBuffer**, **Npp64f** ***pMean**, **Npp64f** ***pStdDev**)

3-channel 8-bit signed char image mean and standard deviation, [Masked Operation](#), [Channel-of-Interest API](#).

- **NppStatus nppiMean_StdDev_16u_C3CMR** (const **Npp16u** ***pSrc**, int **nSrcStep**, const **Npp8u** ***pMask**, int **nMaskStep**, **NppiSize** **oSizeROI**, int **nCOI**, **Npp8u** ***pDeviceBuffer**, **Npp64f** ***pMean**, **Npp64f** ***pStdDev**)

3-channel 16-bit unsigned short int image mean and standard deviation, [Masked Operation](#), [Channel-of-Interest API](#).

- **NppStatus nppiMean_StdDev_32f_C3CMR** (const **Npp32f** ***pSrc**, int **nSrcStep**, const **Npp8u** ***pMask**, int **nMaskStep**, **NppiSize** **oSizeROI**, int **nCOI**, **Npp8u** ***pDeviceBuffer**, **Npp64f** ***pMean**, **Npp64f** ***pStdDev**)

3-channel 32-bit floating-point image mean and standard deviation, [Masked Operation](#), [Channel-of-Interest API](#).

7.81.1 Function Documentation

7.81.1.1 NppStatus nppiMean_StdDev_16u_C1MR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

1-channel 16-bit unsigned short int image mean and standard deviation, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer
Use [nppiMeanStdDevGetBufferSize_16u_C1MR](#) to determine the minimum number of bytes required.
pMean Contains computed mean.
pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.81.1.2 NppStatus nppiMean_StdDev_16u_C1R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

1-channel 16-bit unsigned short int image mean and standard deviation.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer
Use [nppiMeanStdDevGetBufferSize_16u_C1R](#) to determine the minimum number of bytes required.
pMean Contains computed mean.
pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.81.1.3 NppStatus nppiMean_StdDev_16u_C3CMR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

3-channel 16-bit unsigned short int image mean and standard deviation, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanStdDevGetBufferSize_16u_C3CMR](#) to determine the minium number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified.

7.81.1.4 NppStatus nppiMean_StdDev_16u_C3CR (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, int nCOI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

3-channel 16-bit unsigned short int image mean and standard deviation, [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanStdDevGetBufferSize_16u_C3CR](#) to determine the minium number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified.

7.81.1.5 NppStatus nppiMean_StdDev_32f_C1MR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

1-channel 32-bit floating-point image mean and standard deviation, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
Use [nppiMeanStdDevGetBufferSize_32f_C1MR](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified.

7.81.1.6 NppStatus nppiMean_StdDev_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

1-channel 32-bit floating-point image mean and standard deviation.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
Use [nppiMeanStdDevGetBufferSize_32f_C1R](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified.

7.81.1.7 NppStatus nppiMean_StdDev_32f_C3CMR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

3-channel 32-bit floating-point image mean and standard deviation, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanStdDevGetBufferSize_32f_C3CMR](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified, or NPP_COI_ERROR if an invalid channel of interest is specified.

7.81.1.8 NppStatus nppiMean_StdDev_32f_C3CR (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, int *nCOI*, Npp8u * *pDeviceBuffer*, Npp64f * *pMean*, Npp64f * *pStdDev*)

3-channel 32-bit floating-point image mean and standard deviation, [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#) Use [nppiMeanStdDevGetBufferSize_32f_C3CR](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified, or NPP_COI_ERROR if an invalid channel of interest is specified.

7.81.1.9 NppStatus nppiMean_StdDev_8s_C1MR (const Npp8s * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f * *pMean*, Npp64f * *pStdDev*)

1-channel 8-bit signed char image mean and standard deviation, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
Use [nppiMeanStdDevGetBufferSize_8s_C1MR](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.81.1.10 NppStatus nppiMean_StdDev_8s_C1R (const Npp8s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

1-channel 8-bit signed char image mean and standard deviation.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
Use [nppiMeanStdDevGetBufferSize_8s_C1R](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.81.1.11 NppStatus nppiMean_StdDev_8s_C3CMR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

3-channel 8-bit signed char image mean and standard deviation, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
Use [nppiMeanStdDevGetBufferSize_8s_C3CMR](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified.

7.81.1.12 NppStatus nppiMean_StdDev_8s_C3CR (const Npp8s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, int *nCOI*, Npp8u * *pDeviceBuffer*, Npp64f * *pMean*, Npp64f * *pStdDev*)

3-channel 8-bit signed char image mean and standard deviation, [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
Use [nppiMeanStdDevGetBufferSize_8s_C3CR](#) to determine the minium number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified.

7.81.1.13 NppStatus nppiMean_StdDev_8u_C1MR (const Npp8u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, Npp8u * *pDeviceBuffer*, Npp64f * *pMean*, Npp64f * *pStdDev*)

1-channel 8-bit unsigned char image mean and standard deviation, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
Use [nppiMeanStdDevGetBufferSize_8u_C1MR](#) to determine the minium number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.81.1.14 NppStatus nppiMean_StdDev_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

1-channel 8-bit unsigned char image mean and standard deviation.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer
Use [nppiMeanStdDevGetBufferSize_8u_C1R](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.81.1.15 NppStatus nppiMean_StdDev_8u_C3CMR (const Npp8u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp8u * pDeviceBuffer, Npp64f * pMean, Npp64f * pStdDev)

3-channel 8-bit unsigned char image mean and standard deviation, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer
Use [nppiMeanStdDevGetBufferSize_8u_C3CMR](#) to determine the minimum number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.81.1.16 NppStatus nppiMean_StdDev_8u_C3CR (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, int *nCOI*, Npp8u **pDeviceBuffer*, Npp64f **pMean*, Npp64f **pStdDev*)

3-channel 8-bit unsigned char image mean and standard deviation, [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#)
Use [nppiMeanStdDevGetBufferSize_8u_C3CR](#) to determine the minium number of bytes required.

pMean Contains computed mean.

pStdDev Contains computed standard deviation.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.81.1.17 NppStatus nppiMeanStdDevGetBufferSize_16u_C1MR (NppiSize *oSizeROI*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_16u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.18 NppStatus nppiMeanStdDevGetBufferSize_16u_C1R (NppiSize *oSizeROI*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.19 NppStatus nppiMeanStdDevGetBufferSize_16u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_16u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.20 NppStatus nppiMeanStdDevGetBufferSize_16u_C3CR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_16u_C3CR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.21 NppStatus nppiMeanStdDevGetBufferSize_32f_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_32f_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.22 NppStatus nppiMeanStdDevGetBufferSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.23 NppStatus nppiMeanStdDevGetBufferHostSize_32f_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_32f_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.24 NppStatus nppiMeanStdDevGetBufferHostSize_32f_C3CR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_32f_C3CR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.25 NppStatus nppiMeanStdDevGetBufferHostSize_8s_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8s_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.26 NppStatus nppiMeanStdDevGetBufferSize_8s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.27 NppStatus nppiMeanStdDevGetBufferSize_8s_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8s_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.28 NppStatus nppiMeanStdDevGetBufferSize_8s_C3CR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8s_C3CR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.29 NppStatus nppiMeanStdDevGetBufferSize_8u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.30 NppStatus nppiMeanStdDevGetBufferHostSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.31 NppStatus nppiMeanStdDevGetBufferHostSize_8u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.81.1.32 NppStatus nppiMeanStdDevGetBufferHostSize_8u_C3CR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiMean_StdDev_8u_C3CR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82 Infinity Norm

Infinity Norm

These functions compute the infinity norm of an image.

The infinity norm is defined as the largest pixel value of the image. If the image contains multiple channels, the functions will compute the norm for each channel separately. The functions require the addition device scratch buffer for the computations.

- **NppStatus nppiNormInfGetBufferSize_8u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_8u_C1R.
- **NppStatus nppiNormInfGetBufferSize_16u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_16u_C1R.
- **NppStatus nppiNormInfGetBufferSize_16s_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_16s_C1R.
- **NppStatus nppiNormInfGetBufferSize_32s_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_32s_C1R.
- **NppStatus nppiNormInfGetBufferSize_32f_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_32f_C1R.
- **NppStatus nppiNormInfGetBufferSize_8u_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_8u_C1MR.
- **NppStatus nppiNormInfGetBufferSize_8s_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_8s_C1MR.
- **NppStatus nppiNormInfGetBufferSize_16u_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_16u_C1MR.
- **NppStatus nppiNormInfGetBufferSize_32f_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_32f_C1MR.
- **NppStatus nppiNormInfGetBufferSize_8u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_8u_C3R.
- **NppStatus nppiNormInfGetBufferSize_16u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_16u_C3R.
- **NppStatus nppiNormInfGetBufferSize_16s_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_16s_C3R.
- **NppStatus nppiNormInfGetBufferSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormInf_32f_C3R.
- **NppStatus nppiNormInfGetBufferSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**

Device scratch buffer size (in bytes) for nppiNormInf_8u_AC4R.

- **NppStatus nppiNormInfGetBufferSize_16u_AC4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_16u_AC4R.
- **NppStatus nppiNormInfGetBufferSize_16s_AC4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_16s_AC4R.
- **NppStatus nppiNormInfGetBufferSize_32f_AC4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_32f_AC4R.
- **NppStatus nppiNormInfGetBufferSize_8u_C4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_8u_C4R.
- **NppStatus nppiNormInfGetBufferSize_16u_C4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_16u_C4R.
- **NppStatus nppiNormInfGetBufferSize_16s_C4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_16s_C4R.
- **NppStatus nppiNormInfGetBufferSize_32f_C4R** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_32f_C4R.
- **NppStatus nppiNormInfGetBufferSize_8u_C3CMR** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_8u_C3CMR.
- **NppStatus nppiNormInfGetBufferSize_8s_C3CMR** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_8s_C3CMR.
- **NppStatus nppiNormInfGetBufferSize_16u_C3CMR** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_16u_C3CMR.
- **NppStatus nppiNormInfGetBufferSize_32f_C3CMR** (*NppiSize oSizeROI, int *hpBufferSize*)
Device scratch buffer size (in bytes) for nppiNormInf_32f_C3CMR.
- **NppStatus nppiNorm_Inf_8u_C1R** (*const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer*)
1-channel 8-bit unsigned char image infinity norm.
- **NppStatus nppiNorm_Inf_16u_C1R** (*const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer*)
1-channel 16-bit unsigned short image infinity norm.
- **NppStatus nppiNorm_Inf_16s_C1R** (*const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer*)
1-channel 16-bit signed short image infinity norm.
- **NppStatus nppiNorm_Inf_32s_C1R** (*const Npp32s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer*)

1-channel 32-bit signed int image infinity norm.

- **NppStatus nppiNorm_Inf_32f_C1R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

1-channel 32-bit floating-point image infinity norm.

- **NppStatus nppiNorm_Inf_8u_C1MR** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

*1-channel 8-bit unsigned char image infinity norm, *Masked Operation*.*

- **NppStatus nppiNorm_Inf_8s_C1MR** (const **Npp8s** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

*1-channel 8-bit signed char image infinity norm, *Masked Operation*.*

- **NppStatus nppiNorm_Inf_16u_C1MR** (const **Npp16u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

*1-channel 16-bit unsigned short image infinity norm, *Masked Operation*.*

- **NppStatus nppiNorm_Inf_32f_C1MR** (const **Npp32f** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

*1-channel 32-bit floating-point image infinity norm, *Masked Operation*.*

- **NppStatus nppiNorm_Inf_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 8-bit unsigned char image infinity norm.

- **NppStatus nppiNorm_Inf_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 16-bit unsigned short image infinity norm.

- **NppStatus nppiNorm_Inf_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 16-bit signed short image infinity norm.

- **NppStatus nppiNorm_Inf_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 32-bit floating-point image infinity norm.

- **NppStatus nppiNorm_Inf_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

*4-channel 8-bit unsigned char image infinity norm (*alpha channel is not computed*).*

- **NppStatus nppiNorm_Inf_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

*4-channel 16-bit unsigned short image infinity norm (*alpha channel is not computed*).*

- **NppStatus nppiNorm_Inf_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

*4-channel 16-bit signed short image infinity norm (*alpha channel is not computed*).*

- **NppStatus nppiNorm_Inf_32f_AC4R** (const **Npp32f** **pSrc*, int *nSrcStep*, **NppSize** *oSizeROI*, **Npp64f** *aNorm*[3], **Npp8u** **pDeviceBuffer*)
4-channel 32-bit floating-point image infinity norm (alpha channel is not computed).
- **NppStatus nppiNorm_Inf_8u_C4R** (const **Npp8u** **pSrc*, int *nSrcStep*, **NppSize** *oSizeROI*, **Npp64f** *aNorm*[4], **Npp8u** **pDeviceBuffer*)
4-channel 8-bit unsigned char image infinity norm.
- **NppStatus nppiNorm_Inf_16u_C4R** (const **Npp16u** **pSrc*, int *nSrcStep*, **NppSize** *oSizeROI*, **Npp64f** *aNorm*[4], **Npp8u** **pDeviceBuffer*)
4-channel 16-bit unsigned short image infinity norm.
- **NppStatus nppiNorm_Inf_16s_C4R** (const **Npp16s** **pSrc*, int *nSrcStep*, **NppSize** *oSizeROI*, **Npp64f** *aNorm*[4], **Npp8u** **pDeviceBuffer*)
4-channel 16-bit signed short image infinity norm.
- **NppStatus nppiNorm_Inf_32f_C4R** (const **Npp32f** **pSrc*, int *nSrcStep*, **NppSize** *oSizeROI*, **Npp64f** *aNorm*[4], **Npp8u** **pDeviceBuffer*)
4-channel 32-bit floating-point image infinity norm.
- **NppStatus nppiNorm_Inf_8u_C3CMR** (const **Npp8u** **pSrc*, int *nSrcStep*, const **Npp8u** **pMask*, int *nMaskStep*, **NppSize** *oSizeROI*, int *nCOI*, **Npp64f** **pNorm*, **Npp8u** **pDeviceBuffer*)
3-channel 8-bit unsigned char image infinity norm, [Masked Operation](#), [Channel-of-Interest API](#).
- **NppStatus nppiNorm_Inf_8s_C3CMR** (const **Npp8s** **pSrc*, int *nSrcStep*, const **Npp8u** **pMask*, int *nMaskStep*, **NppSize** *oSizeROI*, int *nCOI*, **Npp64f** **pNorm*, **Npp8u** **pDeviceBuffer*)
3-channel 8-bit signed char image infinity norm, [Masked Operation](#), [Channel-of-Interest API](#).
- **NppStatus nppiNorm_Inf_16u_C3CMR** (const **Npp16u** **pSrc*, int *nSrcStep*, const **Npp8u** **pMask*, int *nMaskStep*, **NppSize** *oSizeROI*, int *nCOI*, **Npp64f** **pNorm*, **Npp8u** **pDeviceBuffer*)
3-channel 16-bit unsigned short image infinity norm, [Masked Operation](#), [Channel-of-Interest API](#).
- **NppStatus nppiNorm_Inf_32f_C3CMR** (const **Npp32f** **pSrc*, int *nSrcStep*, const **Npp8u** **pMask*, int *nMaskStep*, **NppSize** *oSizeROI*, int *nCOI*, **Npp64f** **pNorm*, **Npp8u** **pDeviceBuffer*)
3-channel 32-bit floating-point image infinity norm, [Masked Operation](#), [Channel-of-Interest API](#).

7.82.1 Function Documentation

7.82.1.1 NppStatus nppiNorm_Inf_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, **NppSize** *oSizeROI*, **Npp64f** *aNorm*[3], **Npp8u** **pDeviceBuffer*)

4-channel 16-bit signed short image infinity norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_16s_AC4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.2 NppStatus nppiNorm_Inf_16s_C1R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 16-bit signed short image infinity norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_16s_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.3 NppStatus nppiNorm_Inf_16s_C3R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 16-bit signed short image infinity norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of three channels.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_16s_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.4 NppStatus nppiNorm_Inf_16s_C4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u * pDeviceBuffer)

4-channel 16-bit signed short image infinity norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of four channels.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_16s_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.5 NppStatus nppiNorm_Inf_16u_AC4R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f *aNorm*[3], Npp8u * *pDeviceBuffer*)

4-channel 16-bit unsigned short image infinity norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of three channels.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_16u_AC4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.6 NppStatus nppiNorm_Inf_16u_C1MR (const Npp16u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

1-channel 16-bit unsigned short image infinity norm, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_16u_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.7 NppStatus nppiNorm_Inf_16u_C1R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 16-bit unsigned short image infinity norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_16u_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.8 NppStatus nppiNorm_Inf_16u_C3CMR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 16-bit unsigned short image infinity norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nCOI Channel_of_Interest Number.
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_16u_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.82.1.9 NppStatus nppiNorm_Inf_16u_C3R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 16-bit unsigned short image infinity norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormInfGetBufferSize_16u_C3R](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.82.1.10 NppStatus nppiNorm_Inf_16u_C4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u * pDeviceBuffer)

4-channel 16-bit unsigned short image infinity norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of four channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormInfGetBufferSize_16u_C4R](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.82.1.11 NppStatus nppiNorm_Inf_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 32-bit floating-point image infinity norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormInfGetBufferSize_32f_AC4R](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.82.1.12 NppStatus nppiNorm_Inf_32f_C1MR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 32-bit floating-point image infinity norm, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_32f_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.13 NppStatus nppiNorm_Inf_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 32-bit floating-point image infinity norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_32f_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.14 NppStatus nppiNorm_Inf_32f_C3CMR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 32-bit floating-point image infinity norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormInfGetBufferSize_32f_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT EVEN STEP ERROR if an invalid floating-point image is specified, or NPP_COI_ERROR if an invalid channel of interest is specified.

7.82.1.15 NppStatus nppiNorm_Inf_32f_C3R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 32-bit floating-point image infinity norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormInfGetBufferSize_32f_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.16 NppStatus nppiNorm_Inf_32f_C4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u * pDeviceBuffer)

4-channel 32-bit floating-point image infinity norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of four channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormInfGetBufferSize_32f_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.17 NppStatus nppiNorm_Inf_32s_C1R (const Npp32s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 32-bit signed int image infinity norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_32s_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.18 NppStatus nppiNorm_Inf_8s_C1MR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 8-bit signed char image infinity norm, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_8s_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.19 NppStatus nppiNorm_Inf_8s_C3CMR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 8-bit signed char image infinity norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormInfGetBufferSize_8s_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified.

7.82.1.20 NppStatus nppiNorm_Inf_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 8-bit unsigned char image infinity norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormInfGetBufferSize_8u_AC4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.21 NppStatus nppiNorm_Inf_8u_C1MR (const Npp8u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 8-bit unsigned char image infinity norm, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormInfGetBufferSize_8u_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.22 NppStatus nppiNorm_Inf_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 8-bit unsigned char image infinity norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_8u_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.23 NppStatus nppiNorm_Inf_8u_C3CMR (const Npp8u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 8-bit unsigned char image infinity norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nCOI Channel_of_Interest Number.
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormInfGetBufferSize_8u_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.82.1.24 NppStatus nppiNorm_Inf_8u_C3R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 8-bit unsigned char image infinity norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormInfGetBufferSize_8u_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.25 NppStatus nppiNorm_Inf_8u_C4R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f *aNorm*[4], Npp8u **pDeviceBuffer*)

4-channel 8-bit unsigned char image infinity norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of four channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormInfGetBufferSize_8u_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.82.1.26 NppStatus nppiNormInfGetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16s_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.27 NppStatus nppiNormInfGetBufferSize_16s_C1R (NppiSize *oSizeROI*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.28 NppStatus nppiNormInfGetBufferSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.29 NppStatus nppiNormInfGetBufferSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.30 NppStatus nppiNormInfGetBufferSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.31 NppStatus nppiNormInfGetBufferSize_16u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.32 NppStatus nppiNormInfGetBufferSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.33 NppStatus nppiNormInfGetBufferSize_16u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.34 NppStatus nppiNormInfGetBufferSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.35 NppStatus nppiNormInfGetBufferSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.36 NppStatus nppiNormInfGetBufferSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.37 NppStatus nppiNormInfGetBufferSize_32f_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_32f_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.38 NppStatus nppiNormInfGetBufferSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.39 NppStatus nppiNormInfGetBufferSize_32f_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_32f_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.40 NppStatus nppiNormInfGetBufferSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.41 NppStatus nppiNormInfGetBufferSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.42 NppStatus nppiNormInfGetBufferSize_32s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_32s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.43 NppStatus nppiNormInfGetBufferSize_8s_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_8s_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.44 NppStatus nppiNormInfGetBufferSize_8s_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_8s_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.45 NppStatus nppiNormInfGetBufferSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.46 NppStatus nppiNormInfGetBufferSize_8u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_8u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.47 NppStatus nppiNormInfGetBufferSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.48 NppStatus nppiNormInfGetBufferSize_8u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_8u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.49 NppStatus nppiNormInfGetBufferSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.82.1.50 NppStatus nppiNormInfGetBufferSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormInf_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83 L1 Norm

L1 Norm

These functions compute the L1 norm of an image.

The L1 norm is defined as the sum of all the absolute pixel values in the image. If the image contains multiple channels, the functions will compute the norm for each channel separately. The functions require the addition device scratch buffer for the computations.

- **NppStatus nppiNormL1GetBufferSize_8u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_8u_C1R.
- **NppStatus nppiNormL1GetBufferSize_16u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16u_C1R.
- **NppStatus nppiNormL1GetBufferSize_16s_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16s_C1R.
- **NppStatus nppiNormL1GetBufferSize_32f_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_32f_C1R.
- **NppStatus nppiNormL1GetBufferSize_8u_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_8u_C1MR.
- **NppStatus nppiNormL1GetBufferSize_8s_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_8s_C1MR.
- **NppStatus nppiNormL1GetBufferSize_16u_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16u_C1MR.
- **NppStatus nppiNormL1GetBufferSize_32f_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_32f_C1MR.
- **NppStatus nppiNormL1GetBufferSize_8u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_8u_C3R.
- **NppStatus nppiNormL1GetBufferSize_16u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16u_C3R.
- **NppStatus nppiNormL1GetBufferSize_16s_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16s_C3R.
- **NppStatus nppiNormL1GetBufferSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_32f_C3R.
- **NppStatus nppiNormL1GetBufferSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_8u_AC4R.
- **NppStatus nppiNormL1GetBufferSize_16u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**

Device scratch buffer size (in bytes) for nppiNormL1_16u_AC4R.

- **NppStatus nppiNormL1GetBufferSize_16s_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16s_AC4R.
- **NppStatus nppiNormL1GetBufferSize_32f_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_32f_AC4R.
- **NppStatus nppiNormL1GetBufferSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_8u_C4R.
- **NppStatus nppiNormL1GetBufferSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16u_C4R.
- **NppStatus nppiNormL1GetBufferSize_16s_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16s_C4R.
- **NppStatus nppiNormL1GetBufferSize_32f_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_32f_C4R.
- **NppStatus nppiNormL1GetBufferSize_8u_C3CMR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_8u_C3CMR.
- **NppStatus nppiNormL1GetBufferSize_8s_C3CMR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_8s_C3CMR.
- **NppStatus nppiNormL1GetBufferSize_16u_C3CMR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_16u_C3CMR.
- **NppStatus nppiNormL1GetBufferSize_32f_C3CMR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL1_32f_C3CMR.
- **NppStatus nppiNorm_L1_8u_C1R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**
1-channel 8-bit unsigned char image L1 norm.
- **NppStatus nppiNorm_L1_16u_C1R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**
1-channel 16-bit unsigned short image L1 norm.
- **NppStatus nppiNorm_L1_16s_C1R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**
1-channel 16-bit signed short image L1 norm.
- **NppStatus nppiNorm_L1_32f_C1R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**
1-channel 32-bit floating-point image L1 norm.
- **NppStatus nppiNorm_L1_8u_C1MR (const Npp8u *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**

1-channel 8-bit unsigned char image L1 norm, Masked Operation

- **NppStatus nppiNorm_L1_8s_C1MR** (const **Npp8s** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

1-channel 8-bit signed char image L1 norm, Masked Operation

- **NppStatus nppiNorm_L1_16u_C1MR** (const **Npp16u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

1-channel 16-bit unsigned short image L1 norm, Masked Operation

- **NppStatus nppiNorm_L1_32f_C1MR** (const **Npp32f** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

1-channel 32-bit floating-point image L1 norm, Masked Operation.

- **NppStatus nppiNorm_L1_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 8-bit unsigned char image L1 norm.

- **NppStatus nppiNorm_L1_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 16-bit unsigned short image L1 norm.

- **NppStatus nppiNorm_L1_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 16-bit signed short image L1 norm.

- **NppStatus nppiNorm_L1_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 32-bit floating-point image L1 norm.

- **NppStatus nppiNorm_L1_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

4-channel 8-bit unsigned char image L1 norm (alpha channel is not computed).

- **NppStatus nppiNorm_L1_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

4-channel 16-bit unsigned short image L1 norm (alpha channel is not computed).

- **NppStatus nppiNorm_L1_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

4-channel 16-bit signed short image L1 norm (alpha channel is not computed).

- **NppStatus nppiNorm_L1_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

4-channel 32-bit floating-point image L1 norm (alpha channel is not computed).

- **NppStatus nppiNorm_L1_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[4], **Npp8u** *pDeviceBuffer)

4-channel 8-bit unsigned char image L1 norm.

- **NppStatus nppiNorm_L1_16u_C4R** (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u *pDeviceBuffer)

4-channel 16-bit unsigned short image L1 norm.

- **NppStatus nppiNorm_L1_16s_C4R** (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u *pDeviceBuffer)

4-channel 16-bit signed short image L1 norm.

- **NppStatus nppiNorm_L1_32f_C4R** (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u *pDeviceBuffer)

4-channel 32-bit floating-point image L1 norm.

- **NppStatus nppiNorm_L1_8u_C3CMR** (const Npp8u *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f *pNorm, Npp8u *pDeviceBuffer)

3-channel 8-bit unsigned char image L1 norm, *Masked Operation, Channel-of-Interest API*.

- **NppStatus nppiNorm_L1_8s_C3CMR** (const Npp8s *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f *pNorm, Npp8u *pDeviceBuffer)

3-channel 8-bit signed char image L1 norm, *Masked Operation, Channel-of-Interest API*.

- **NppStatus nppiNorm_L1_16u_C3CMR** (const Npp16u *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f *pNorm, Npp8u *pDeviceBuffer)

3-channel 16-bit unsigned short image L1 norm, *Masked Operation, Channel-of-Interest API*.

- **NppStatus nppiNorm_L1_32f_C3CMR** (const Npp32f *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f *pNorm, Npp8u *pDeviceBuffer)

3-channel 32-bit floating-point image L1 norm, *Masked Operation, Channel-of-Interest API*.

7.83.1 Function Documentation

7.83.1.1 NppStatus nppiNorm_L1_16s_AC4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 16-bit signed short image L1 norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use **nppiNormL1GetBufferSize_16s_AC4R** to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.83.1.2 NppStatus nppiNorm_L1_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

1-channel 16-bit signed short image L1 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
 Use [nppiNormL1GetBufferSize_16s_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.3 NppStatus nppiNorm_L1_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f *aNorm*[3], Npp8u * *pDeviceBuffer*)

3-channel 16-bit signed short image L1 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of three channels.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
 Use [nppiNormL1GetBufferSize_16s_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.4 NppStatus nppiNorm_L1_16s_C4R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f *aNorm*[4], Npp8u * *pDeviceBuffer*)

4-channel 16-bit signed short image L1 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of four channels.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
 Use [nppiNormL1GetBufferSize_16s_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.5 NppStatus nppiNorm_L1_16u_AC4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 16-bit unsigned short image L1 norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL1GetBufferSize_16u_AC4R](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.83.1.6 NppStatus nppiNorm_L1_16u_C1MR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 16-bit unsigned short image L1 norm, [Masked Operation](#)

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL1GetBufferSize_16u_C1MR](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.83.1.7 NppStatus nppiNorm_L1_16u_C1R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 16-bit unsigned short image L1 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_16u_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.8 NppStatus nppiNorm_L1_16u_C3CMR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 16-bit unsigned short image L1 norm, [Masked Operation, Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_16u_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.83.1.9 NppStatus nppiNorm_L1_16u_C3R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 16-bit unsigned short image L1 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_16u_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.10 NppStatus nppiNorm_L1_16u_C4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u * pDeviceBuffer)

4-channel 16-bit unsigned short image L1 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of four channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL1GetBufferSize_16u_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.11 NppStatus nppiNorm_L1_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 32-bit floating-point image L1 norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL1GetBufferSize_32f_AC4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.12 NppStatus nppiNorm_L1_32f_C1MR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 32-bit floating-point image L1 norm, [Masked Operation](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_32f_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.13 NppStatus nppiNorm_L1_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 32-bit floating-point image L1 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL1GetBufferSize_32f_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.14 NppStatus nppiNorm_L1_32f_C3CMR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 32-bit floating-point image L1 norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL1GetBufferSize_32f_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT_EVEN_STEP_ERROR if the step of the source image cannot be divided by 4, or NPP_COI_ERROR if an invalid channel of interest is specified.

7.83.1.15 NppStatus nppiNorm_L1_32f_C3R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 32-bit floating-point image L1 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL1GetBufferSize_32f_C3R](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.83.1.16 NppStatus nppiNorm_L1_32f_C4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u * pDeviceBuffer)

4-channel 32-bit floating-point image L1 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of four channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL1GetBufferSize_32f_C4R](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.83.1.17 NppStatus nppiNorm_L1_8s_C1MR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 8-bit signed char image L1 norm, Masked Operation

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_8s_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.18 NppStatus nppiNorm_L1_8s_C3CMR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 8-bit signed char image L1 norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_8s_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.83.1.19 NppStatus nppiNorm_L1_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 8-bit unsigned char image L1 norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_8u_AC4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.20 NppStatus nppiNorm_L1_8u_C1MR (const Npp8u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

1-channel 8-bit unsigned char image L1 norm, [Masked Operation](#)

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_8u_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.21 NppStatus nppiNorm_L1_8u_C1R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

1-channel 8-bit unsigned char image L1 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL1GetBufferSize_8u_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.22 NppStatus nppiNorm_L1_8u_C3CMR (const Npp8u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, int *nCOI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

3-channel 8-bit unsigned char image L1 norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL1GetBufferSize_8u_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified.

7.83.1.23 NppStatus nppiNorm_L1_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f *aNorm*[3], Npp8u * *pDeviceBuffer*)

3-channel 8-bit unsigned char image L1 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL1GetBufferSize_8u_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.24 NppStatus nppiNorm_L1_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f *aNorm*[4], Npp8u * *pDeviceBuffer*)

4-channel 8-bit unsigned char image L1 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of four channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL1GetBufferSize_8u_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.83.1.25 NppStatus nppiNormL1GetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16s_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.26 NppStatus nppiNormL1GetBufferSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.27 NppStatus nppiNormL1GetBufferSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer](#) and [Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.28 NppStatus nppiNormL1GetBufferSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.29 NppStatus nppiNormL1GetBufferHostSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.30 NppStatus nppiNormL1GetBufferHostSize_16u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.31 NppStatus nppiNormL1GetBufferHostSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.32 NppStatus nppiNormL1GetBufferSize_16u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.33 NppStatus nppiNormL1GetBufferSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.34 NppStatus nppiNormL1GetBufferSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.35 NppStatus nppiNormL1GetBufferSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.36 NppStatus nppiNormL1GetBufferHostSize_32f_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_32f_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.37 NppStatus nppiNormL1GetBufferHostSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.38 NppStatus nppiNormL1GetBufferHostSize_32f_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_32f_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.39 NppStatus nppiNormL1GetBufferSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.40 NppStatus nppiNormL1GetBufferSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.41 NppStatus nppiNormL1GetBufferSize_8s_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_8s_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.42 NppStatus nppiNormL1GetBufferSize_8s_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_8s_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.43 NppStatus nppiNormL1GetBufferHostSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.44 NppStatus nppiNormL1GetBufferHostSize_8u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_8u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.45 NppStatus nppiNormL1GetBufferHostSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.46 NppStatus nppiNormL1GetBufferHostSize_8u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_8u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.47 NppStatus nppiNormL1GetBufferHostSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.83.1.48 NppStatus nppiNormL1GetBufferHostSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL1_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84 L2 Norm

L2 Norm

These functions compute the L2 norm of an image.

The L2 norm is defined as the sum of all the square pixel values in the image. If the image contains multiple channels, the functions will compute the norm for each channel separately. The functions require the addition device scratch buffer for the computations.

- **NppStatus nppiNormL2GetBufferSize_8u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_8u_C1R.
- **NppStatus nppiNormL2GetBufferSize_16u_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16u_C1R.
- **NppStatus nppiNormL2GetBufferSize_16s_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16s_C1R.
- **NppStatus nppiNormL2GetBufferSize_32f_C1R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_32f_C1R.
- **NppStatus nppiNormL2GetBufferSize_8u_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_8u_C1MR.
- **NppStatus nppiNormL2GetBufferSize_8s_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_8s_C1MR.
- **NppStatus nppiNormL2GetBufferSize_16u_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16u_C1MR.
- **NppStatus nppiNormL2GetBufferSize_32f_C1MR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_32f_C1MR.
- **NppStatus nppiNormL2GetBufferSize_8u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_8u_C3R.
- **NppStatus nppiNormL2GetBufferSize_16u_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16u_C3R.
- **NppStatus nppiNormL2GetBufferSize_16s_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16s_C3R.
- **NppStatus nppiNormL2GetBufferSize_32f_C3R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_32f_C3R.
- **NppStatus nppiNormL2GetBufferSize_8u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_8u_AC4R.
- **NppStatus nppiNormL2GetBufferSize_16u_AC4R (NppiSize oSizeROI, int *hpBufferSize)**

Device scratch buffer size (in bytes) for nppiNormL2_16u_AC4R.

- **NppStatus nppiNormL2GetBufferSize_16s_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16s_AC4R.
- **NppStatus nppiNormL2GetBufferSize_32f_AC4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_32f_AC4R.
- **NppStatus nppiNormL2GetBufferSize_8u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_8u_C4R.
- **NppStatus nppiNormL2GetBufferSize_16u_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16u_C4R.
- **NppStatus nppiNormL2GetBufferSize_16s_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16s_C4R.
- **NppStatus nppiNormL2GetBufferSize_32f_C4R (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_32f_C4R.
- **NppStatus nppiNormL2GetBufferSize_8u_C3CMR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_8u_C3CMR.
- **NppStatus nppiNormL2GetBufferSize_8s_C3CMR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_8s_C3CMR.
- **NppStatus nppiNormL2GetBufferSize_16u_C3CMR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_16u_C3CMR.
- **NppStatus nppiNormL2GetBufferSize_32f_C3CMR (NppiSize oSizeROI, int *hpBufferSize)**
Device scratch buffer size (in bytes) for nppiNormL2_32f_C3CMR.
- **NppStatus nppiNorm_L2_8u_C1R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**
1-channel 8-bit unsigned char image L2 norm.
- **NppStatus nppiNorm_L2_16u_C1R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**
1-channel 16-bit unsigned short image L2 norm.
- **NppStatus nppiNorm_L2_16s_C1R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**
1-channel 16-bit signed short image L2 norm.
- **NppStatus nppiNorm_L2_32f_C1R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**
1-channel 32-bit floating-point image L2 norm.
- **NppStatus nppiNorm_L2_8u_C1MR (const Npp8u *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, Npp64f *pNorm, Npp8u *pDeviceBuffer)**

Masked Operation 1-channel 8-bit unsigned char image L2 norm.

- **NppStatus nppiNorm_L2_8s_C1MR** (const **Npp8s** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

Masked Operation 1-channel 8-bit signed char image L2 norm.

- **NppStatus nppiNorm_L2_16u_C1MR** (const **Npp16u** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

Masked Operation 1-channel 16-bit unsigned short image L2 norm.

- **NppStatus nppiNorm_L2_32f_C1MR** (const **Npp32f** *pSrc, int nSrcStep, const **Npp8u** *pMask, int nMaskStep, **NppiSize** oSizeROI, **Npp64f** *pNorm, **Npp8u** *pDeviceBuffer)

Masked Operation 1-channel 32-bit floating-point image L2 norm.

- **NppStatus nppiNorm_L2_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 8-bit unsigned char image L2 norm.

- **NppStatus nppiNorm_L2_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 16-bit unsigned short image L2 norm.

- **NppStatus nppiNorm_L2_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 16-bit signed short image L2 norm.

- **NppStatus nppiNorm_L2_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

3-channel 32-bit floating-point image L2 norm.

- **NppStatus nppiNorm_L2_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

4-channel 8-bit unsigned char image L2 norm (*alpha channel is not computed*).

- **NppStatus nppiNorm_L2_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

4-channel 16-bit unsigned short image L2 norm (*alpha channel is not computed*).

- **NppStatus nppiNorm_L2_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

4-channel 16-bit signed short image L2 norm (*alpha channel is not computed*).

- **NppStatus nppiNorm_L2_32f_AC4R** (const **Npp32f** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[3], **Npp8u** *pDeviceBuffer)

4-channel 32-bit floating-point image L2 norm (*alpha channel is not computed*).

- **NppStatus nppiNorm_L2_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp64f** aNorm[4], **Npp8u** *pDeviceBuffer)

4-channel 8-bit unsigned char image L2 norm.

- **NppStatus nppiNorm_L2_16u_C4R** (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u *pDeviceBuffer)
4-channel 16-bit unsigned short image L2 norm.
- **NppStatus nppiNorm_L2_16s_C4R** (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u *pDeviceBuffer)
4-channel 16-bit signed short image L2 norm.
- **NppStatus nppiNorm_L2_32f_C4R** (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u *pDeviceBuffer)
4-channel 32-bit floating-point image L2 norm.
- **NppStatus nppiNorm_L2_8u_C3CMR** (const Npp8u *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f *pNorm, Npp8u *pDeviceBuffer)
3-channel 8-bit unsigned char image L2 norm, [Masked Operation](#), [Channel-of-Interest API](#).
- **NppStatus nppiNorm_L2_8s_C3CMR** (const Npp8s *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f *pNorm, Npp8u *pDeviceBuffer)
3-channel 8-bit signed char image L2 norm, [Masked Operation](#), [Channel-of-Interest API](#).
- **NppStatus nppiNorm_L2_16u_C3CMR** (const Npp16u *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f *pNorm, Npp8u *pDeviceBuffer)
3-channel 16-bit unsigned short image L2 norm, [Masked Operation](#), [Channel-of-Interest API](#).
- **NppStatus nppiNorm_L2_32f_C3CMR** (const Npp32f *pSrc, int nSrcStep, const Npp8u *pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f *pNorm, Npp8u *pDeviceBuffer)
3-channel 32-bit floating-point image L2 norm, [Masked Operation](#), [Channel-of-Interest API](#).

7.84.1 Function Documentation

7.84.1.1 NppStatus nppiNorm_L2_16s_AC4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 16-bit signed short image L2 norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer](#) and [Host Pointer](#).

Use [nppiNormL2GetBufferSize_16s_AC4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.2 NppStatus nppiNorm_L2_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

1-channel 16-bit signed short image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppiNormL2GetBufferSize_16s_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.3 NppStatus nppiNorm_L2_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f *aNorm*[3], Npp8u * *pDeviceBuffer*)

3-channel 16-bit signed short image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of three channels.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppiNormL2GetBufferSize_16s_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.4 NppStatus nppiNorm_L2_16s_C4R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f *aNorm*[4], Npp8u * *pDeviceBuffer*)

4-channel 16-bit signed short image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of four channels.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppiNormL2GetBufferSize_16s_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.5 NppStatus nppiNorm_L2_16u_AC4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 16-bit unsigned short image L2 norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL2GetBufferSize_16u_AC4R](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.84.1.6 NppStatus nppiNorm_L2_16u_C1MR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

Masked Operation 1-channel 16-bit unsigned short image L2 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL2GetBufferSize_16u_C1MR](#) to compute the required size (in bytes).

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.84.1.7 NppStatus nppiNorm_L2_16u_C1R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 16-bit unsigned short image L2 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_16u_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.8 NppStatus nppiNorm_L2_16u_C3CMR (const Npp16u * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 16-bit unsigned short image L2 norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL2GetBufferSize_16u_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.84.1.9 NppStatus nppiNorm_L2_16u_C3R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 16-bit unsigned short image L2 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL2GetBufferSize_16u_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.10 NppStatus nppiNorm_L2_16u_C4R (const Npp16u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u * pDeviceBuffer)

4-channel 16-bit unsigned short image L2 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of four channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL2GetBufferSize_16u_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.11 NppStatus nppiNorm_L2_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 32-bit floating-point image L2 norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppiNormL2GetBufferSize_32f_AC4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.12 NppStatus nppiNorm_L2_32f_C1MR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

Masked Operation 1-channel 32-bit floating-point image L2 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_32f_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT EVEN STEP ERROR if the step of the source image cannot be divided by 4.

7.84.1.13 NppStatus nppiNorm_L2_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

1-channel 32-bit floating-point image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_32f_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.14 NppStatus nppiNorm_L2_32f_C3CMR (const Npp32f * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 32-bit floating-point image L2 norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nCOI Channel_of_Interest Number.
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_32f_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), NPP_NOT EVEN STEP ERROR if the step of the source image cannot be divided by 4, or NPP_COI_ERROR if an invalid channel of interest is specified.

7.84.1.15 NppStatus nppiNorm_L2_32f_C3R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 32-bit floating-point image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of three channels.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppiNormL2GetBufferSize_32f_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.16 NppStatus nppiNorm_L2_32f_C4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u * pDeviceBuffer)

4-channel 32-bit floating-point image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
aNorm Array that contains the norm values of four channels.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppiNormL2GetBufferSize_32f_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.17 NppStatus nppiNorm_L2_8s_C1MR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

Masked Operation 1-channel 8-bit signed char image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_8s_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.18 NppStatus nppiNorm_L2_8s_C3CMR (const Npp8s * pSrc, int nSrcStep, const Npp8u * pMask, int nMaskStep, NppiSize oSizeROI, int nCOI, Npp64f * pNorm, Npp8u * pDeviceBuffer)

3-channel 8-bit signed char image L2 norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_8s_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_COI_ERROR](#) if an invalid channel of interest is specified.

7.84.1.19 NppStatus nppiNorm_L2_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

4-channel 8-bit unsigned char image L2 norm (alpha channel is not computed).

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_8u_AC4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.20 NppStatus nppiNorm_L2_8u_C1MR (const Npp8u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

Masked Operation 1-channel 8-bit unsigned char image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.
nMaskStep Mask-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_8u_C1MR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.21 NppStatus nppiNorm_L2_8u_C1R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

1-channel 8-bit unsigned char image L2 norm.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pNorm Pointer to the norm value.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppiNormL2GetBufferSize_8u_C1R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.22 NppStatus nppiNorm_L2_8u_C3CMR (const Npp8u * *pSrc*, int *nSrcStep*, const Npp8u * *pMask*, int *nMaskStep*, NppiSize *oSizeROI*, int *nCOI*, Npp64f * *pNorm*, Npp8u * *pDeviceBuffer*)

3-channel 8-bit unsigned char image L2 norm, [Masked Operation](#), [Channel-of-Interest API](#).

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pMask Mask-Image Pointer.

nMaskStep Mask-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nCOI Channel_of_Interest Number.

pNorm Pointer to the norm value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL2GetBufferSize_8u_C3CMR](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_COI_ERROR if an invalid channel of interest is specified.

7.84.1.23 NppStatus nppiNorm_L2_8u_C3R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[3], Npp8u * pDeviceBuffer)

3-channel 8-bit unsigned char image L2 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of three channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL2GetBufferSize_8u_C3R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.24 NppStatus nppiNorm_L2_8u_C4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp64f aNorm[4], Npp8u * pDeviceBuffer)

4-channel 8-bit unsigned char image L2 norm.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aNorm Array that contains the norm values of four channels.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppiNormL2GetBufferSize_8u_C4R](#) to compute the required size (in bytes).

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.84.1.25 NppStatus nppiNormL2GetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16s_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.26 NppStatus nppiNormL2GetBufferSize_16s_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.27 NppStatus nppiNormL2GetBufferSize_16s_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16s_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.28 NppStatus nppiNormL2GetBufferSize_16s_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16s_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.29 NppStatus nppiNormL2GetBufferHostSize_16u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.30 NppStatus nppiNormL2GetBufferHostSize_16u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.31 NppStatus nppiNormL2GetBufferHostSize_16u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.32 NppStatus nppiNormL2GetBufferSize_16u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.33 NppStatus nppiNormL2GetBufferSize_16u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.34 NppStatus nppiNormL2GetBufferSize_16u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_16u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.35 NppStatus nppiNormL2GetBufferSize_32f_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_32f_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.36 NppStatus nppiNormL2GetBufferHostSize_32f_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_32f_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.37 NppStatus nppiNormL2GetBufferHostSize_32f_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.38 NppStatus nppiNormL2GetBufferHostSize_32f_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_32f_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.39 NppStatus nppiNormL2GetBufferSize_32f_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_32f_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.40 NppStatus nppiNormL2GetBufferSize_32f_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_32f_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.41 NppStatus nppiNormL2GetBufferSize_8s_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_8s_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.42 NppStatus nppiNormL2GetBufferSize_8s_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_8s_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.43 NppStatus nppiNormL2GetBufferHostSize_8u_AC4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_8u_AC4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.44 NppStatus nppiNormL2GetBufferHostSize_8u_C1MR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_8u_C1MR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.45 NppStatus nppiNormL2GetBufferHostSize_8u_C1R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.46 NppStatus nppiNormL2GetBufferSize_8u_C3CMR (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_8u_C3CMR.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.47 NppStatus nppiNormL2GetBufferSize_8u_C3R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.84.1.48 NppStatus nppiNormL2GetBufferSize_8u_C4R (NppiSize *oSizeROI*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppiNormL2_8u_C4R.

Parameters:

oSizeROI Region-of-Interest (ROI).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.85 Norm Diff

NormDiff

Norm of pixel differences between two images.

- **NppStatus nppiNormDiff_L1_8u_C1R** (const **Npp8u** **pSrc1*, int *nSrcStep1*, const **Npp8u** **pSrc2*, int *nSrcStep2*, **NppSize** *oSizeROI*, **Npp64f** **pRetVal*)
8-bit unsigned L1 norm of pixel differences.
- **NppStatus nppiNormDiff_L2_8u_C1R** (const **Npp8u** **pSrc1*, int *nSrcStep1*, const **Npp8u** **pSrc2*, int *nSrcStep2*, **NppSize** *oSizeROI*, **Npp64f** **pRetVal*)
8-bit unsigned L2 norm of pixel differences.
- **NppStatus nppiNormDiff_Inf_8u_C1R** (const **Npp8u** **pSrc1*, int *nSrcStep1*, const **Npp8u** **pSrc2*, int *nSrcStep2*, **NppSize** *oSizeROI*, **Npp64f** **pRetVal*)
8-bit unsigned Infinity Norm of pixel differences.

7.85.1 Function Documentation

7.85.1.1 NppStatus nppiNormDiff_Inf_8u_C1R (const Npp8u * *pSrc1*, int *nSrcStep1*, const Npp8u * *pSrc2*, int *nSrcStep2*, NppSize *oSizeROI*, Npp64f * *pRetVal*)

8-bit unsigned Infinity Norm of pixel differences.

Parameters:

- pSrc1* Source-Image Pointer.
nSrcStep1 Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrcStep2 Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
**pRetVal* Contains computed L1-norm of differences. This is a host pointer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.85.1.2 NppStatus nppiNormDiff_L1_8u_C1R (const Npp8u * *pSrc1*, int *nSrcStep1*, const Npp8u * *pSrc2*, int *nSrcStep2*, NppSize *oSizeROI*, Npp64f * *pRetVal*)

8-bit unsigned L1 norm of pixel differences.

Parameters:

- pSrc1* Source-Image Pointer.
nSrcStep1 Source-Image Line Step.
pSrc2 Source-Image Pointer.

nSrcStep2 Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pRetVal Contains computed L1-norm of differences. This is a host pointer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.85.1.3 NppStatus nppiNormDiff_L2_8u_C1R (const Npp8u * pSrc1, int nSrcStep1, const Npp8u * pSrc2, int nSrcStep2, NppiSize oSizeROI, Npp64f * pRetVal)

8-bit unsigned L2 norm of pixel differences.

Parameters:

pSrc1 Source-Image Pointer.

nSrcStep1 Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrcStep2 Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pRetVal Contains computed L1-norm of differences. This is a host pointer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.86 Integral and Rectangular Standard Deviation

Integral

- `NppStatus nppiSqrIntegral_8u32s32f_C1R (Npp8u *pSrc, int nSrcStep, Npp32s *pDst, int nDstStep, Npp32f *pSqr, int nSqrStep, NppiSize oSrcROI, Npp32s val, Npp32f valSqr, Npp32s integralImageNewHeight)`

SqrIntegral Transforms an image to integral and integral of pixel squares representation.

- `NppStatus nppiRectStdDev_32s32f_C1R (const Npp32s *pSrc, int nSrcStep, const Npp64f *pSqr, int nSqrStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, NppiRect rect)`

RectStdDev Computes the standard deviation of integral images.

7.86.1 Function Documentation

7.86.1.1 `NppStatus nppiRectStdDev_32s32f_C1R (const Npp32s * pSrc, int nSrcStep, const Npp64f * pSqr, int nSqrStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, NppiRect rect)`

RectStdDev Computes the standard deviation of integral images.

Parameters:

- `pSrc` Source-Image Pointer.
- `nSrcStep` Source-Image Line Step.
- `pSqr` Destination-Image Pointer.
- `nSqrStep` Destination-Image Line Step.
- `pDst` Destination-Image Pointer.
- `nDstStep` Destination-Image Line Step.
- `oSizeROI` Region-of-Interest (ROI).
- `rect` rectangular window

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.86.1.2 `NppStatus nppiSqrIntegral_8u32s32f_C1R (Npp8u * pSrc, int nSrcStep, Npp32s * pDst, int nDstStep, Npp32f * pSqr, int nSqrStep, NppiSize oSrcROI, Npp32s val, Npp32f valSqr, Npp32s integralImageNewHeight)`

SqrIntegral Transforms an image to integral and integral of pixel squares representation.

This function assumes that the integral and integral of squares images.

Parameters:

- `pSrc` Source-Image Pointer.
- `nSrcStep` Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

pSqr Destination-Image Pointer.

nSqrStep Destination-Image Line Step.

oSrcROI Region-of-Interest (ROI).

val The value to add to pDst image pixels

valSqr The value to add to pSqr image pixels

integralImageNewHeight Extended height of output surfaces (needed by transpose in primitive)

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87 Histogram

Histogram

- `NppStatus nppiEvenLevelsHost_32s (Npp32s *hpLevels, int nLevels, Npp32s nLowerLevel, Npp32s nUpperLevel)`
Compute levels with even distribution.
- `NppStatus nppiHistogramEvenGetBufferSize_8u_C1R (NppiSize oSizeROI, int nLevels, int *hpBufferSize)`
Scratch-buffer size for nppiHistogramEven_8u_C1R.
- `NppStatus nppiHistogramEven_8u_C1R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist, int nLevels, Npp32s nLowerLevel, Npp32s nUpperLevel, Npp8u *pBuffer)`
8-bit unsigned histogram with evenly distributed bins.
- `NppStatus nppiHistogramEvenGetBufferSize_8u_C3R (NppiSize oSizeROI, int nLevels[3], int *hpBufferSize)`
Scratch-buffer size for nppiHistogramEven_8u_C3R.
- `NppStatus nppiHistogramEven_8u_C3R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist[3], int nLevels[3], Npp32s nLowerLevel[3], Npp32s nUpperLevel[3], Npp8u *pBuffer)`
3 channel 8-bit unsigned histogram with evenly distributed bins.
- `NppStatus nppiHistogramEvenGetBufferSize_8u_C4R (NppiSize oSizeROI, int nLevels[4], int *hpBufferSize)`
Scratch-buffer size for nppiHistogramEven_8u_C4R.
- `NppStatus nppiHistogramEven_8u_C4R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist[4], int nLevels[4], Npp32s nLowerLevel[4], Npp32s nUpperLevel[4], Npp8u *pBuffer)`
4 channel 8-bit unsigned histogram with evenly distributed bins.
- `NppStatus nppiHistogramEvenGetBufferSize_8u_AC4R (NppiSize oSizeROI, int nLevels[3], int *hpBufferSize)`
Scratch-buffer size for nppiHistogramEven_8u_AC4R.
- `NppStatus nppiHistogramEven_8u_AC4R (const Npp8u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist[3], int nLevels[3], Npp32s nLowerLevel[3], Npp32s nUpperLevel[3], Npp8u *pBuffer)`
4 channel (alpha as the last channel) 8-bit unsigned histogram with evenly distributed bins.
- `NppStatus nppiHistogramEvenGetBufferSize_16u_C1R (NppiSize oSizeROI, int nLevels, int *hpBufferSize)`
Scratch-buffer size for nppiHistogramEven_16u_C1R.
- `NppStatus nppiHistogramEven_16u_C1R (const Npp16u *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist, int nLevels, Npp32s nLowerLevel, Npp32s nUpperLevel, Npp8u *pBuffer)`
16-bit unsigned histogram with evenly distributed bins.

- **NppStatus nppiHistogramEvenGetBufferSize_16u_C3R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)
Scratch-buffer size for nppiHistogramEven_16u_C3R.
- **NppStatus nppiHistogramEven_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], int nLevels[3], **Npp32s** nLowerLevel[3], **Npp32s** nUpperLevel[3], **Npp8u** *pBuffer)
3 channel 16-bit unsigned histogram with evenly distributed bins.
- **NppStatus nppiHistogramEvenGetBufferSize_16u_C4R** (**NppiSize** oSizeROI, int nLevels[4], int *hpBufferSize)
Scratch-buffer size for nppiHistogramEven_16u_C4R.
- **NppStatus nppiHistogramEven_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[4], int nLevels[4], **Npp32s** nLowerLevel[4], **Npp32s** nUpperLevel[4], **Npp8u** *pBuffer)
4 channel 16-bit unsigned histogram with evenly distributed bins.
- **NppStatus nppiHistogramEvenGetBufferSize_16u_AC4R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)
Scratch-buffer size for nppiHistogramEven_16u_AC4R.
- **NppStatus nppiHistogramEven_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], int nLevels[3], **Npp32s** nLowerLevel[3], **Npp32s** nUpperLevel[3], **Npp8u** *pBuffer)
4 channel (alpha as the last channel) 16-bit unsigned histogram with evenly distributed bins.
- **NppStatus nppiHistogramEvenGetBufferSize_16s_C1R** (**NppiSize** oSizeROI, int nLevels, int *hpBufferSize)
Scratch-buffer size for nppiHistogramEven_16s_C1R.
- **NppStatus nppiHistogramEven_16s_C1R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist, int nLevels, **Npp32s** nLowerLevel, **Npp32s** nUpperLevel, **Npp8u** *pBuffer)
16-bit signed histogram with evenly distributed bins.
- **NppStatus nppiHistogramEvenGetBufferSize_16s_C3R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)
Scratch-buffer size for nppiHistogramEven_16s_C3R.
- **NppStatus nppiHistogramEven_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], int nLevels[3], **Npp32s** nLowerLevel[3], **Npp32s** nUpperLevel[3], **Npp8u** *pBuffer)
3 channel 16-bit signed histogram with evenly distributed bins.
- **NppStatus nppiHistogramEvenGetBufferSize_16s_C4R** (**NppiSize** oSizeROI, int nLevels[4], int *hpBufferSize)
Scratch-buffer size for nppiHistogramEven_16s_C4R.
- **NppStatus nppiHistogramEven_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[4], int nLevels[4], **Npp32s** nLowerLevel[4], **Npp32s** nUpperLevel[4], **Npp8u** *pBuffer)
4 channel (alpha as the last channel) 16-bit signed histogram with evenly distributed bins.

4 channel 16-bit signed histogram with evenly distributed bins.

- **NppStatus nppiHistogramEvenGetBufferSize_16s_AC4R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)

Scratch-buffer size for nppiHistogramEven_16s_AC4R.

- **NppStatus nppiHistogramEven_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], int nLevels[3], **Npp32s** nLowerLevel[3], **Npp32s** nUpperLevel[3], **Npp8u** *pBuffer)

4 channel (alpha as the last channel) 16-bit signed histogram with evenly distributed bins.

- **NppStatus nppiHistogramRangeGetBufferSize_8u_C1R** (**NppiSize** oSizeROI, int nLevels, int *hpBufferSize)

Scratch-buffer size for nppiHistogramRange_8u_C1R.

- **NppStatus nppiHistogramRange_8u_C1R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist, const **Npp32s** *pLevels, int nLevels, **Npp8u** *pBuffer)

8-bit unsigned histogram with bins determined by pLevels array.

- **NppStatus nppiHistogramRangeGetBufferSize_8u_C3R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)

Scratch-buffer size for nppiHistogramRange_8u_C3R.

- **NppStatus nppiHistogramRange_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], const **Npp32s** *pLevels[3], int nLevels[3], **Npp8u** *pBuffer)

3 channel 8-bit unsigned histogram with bins determined by pLevels.

- **NppStatus nppiHistogramRangeGetBufferSize_8u_C4R** (**NppiSize** oSizeROI, int nLevels[4], int *hpBufferSize)

Scratch-buffer size for nppiHistogramRange_8u_C4R.

- **NppStatus nppiHistogramRange_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[4], const **Npp32s** *pLevels[4], int nLevels[4], **Npp8u** *pBuffer)

4 channel 8-bit unsigned histogram with bins determined by pLevels.

- **NppStatus nppiHistogramRangeGetBufferSize_8u_AC4R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)

Scratch-buffer size for nppiHistogramRange_8u_AC4R.

- **NppStatus nppiHistogramRange_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], const **Npp32s** *pLevels[3], int nLevels[3], **Npp8u** *pBuffer)

4 channel (alpha as a last channel) 8-bit unsigned histogram with bins determined by pLevels.

- **NppStatus nppiHistogramRangeGetBufferSize_16u_C1R** (**NppiSize** oSizeROI, int nLevels, int *hpBufferSize)

Scratch-buffer size for nppiHistogramRange_16u_C1R.

- **NppStatus nppiHistogramRange_16u_C1R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist, const **Npp32s** *pLevels, int nLevels, **Npp8u** *pBuffer)

16-bit unsigned histogram with bins determined by pLevels array.

- **NppStatus nppiHistogramRangeGetBufferSize_16u_C3R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)
Scratch-buffer size for nppiHistogramRange_16u_C3R.
- **NppStatus nppiHistogramRange_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], const **Npp32s** *pLevels[3], int nLevels[3], **Npp8u** *pBuffer)
3 channel 16-bit unsigned histogram with bins determined by pLevels.
- **NppStatus nppiHistogramRangeGetBufferSize_16u_C4R** (**NppiSize** oSizeROI, int nLevels[4], int *hpBufferSize)
Scratch-buffer size for nppiHistogramRange_16u_C4R.
- **NppStatus nppiHistogramRange_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[4], const **Npp32s** *pLevels[4], int nLevels[4], **Npp8u** *pBuffer)
4 channel 16-bit unsigned histogram with bins determined by pLevels.
- **NppStatus nppiHistogramRangeGetBufferSize_16u_AC4R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)
Scratch-buffer size for nppiHistogramRange_16u_AC4R.
- **NppStatus nppiHistogramRange_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], const **Npp32s** *pLevels[3], int nLevels[3], **Npp8u** *pBuffer)
4 channel (alpha as a last channel) 16-bit unsigned histogram with bins determined by pLevels.
- **NppStatus nppiHistogramRangeGetBufferSize_16s_C1R** (**NppiSize** oSizeROI, int nLevels, int *hpBufferSize)
Scratch-buffer size for nppiHistogramRange_16s_C1R.
- **NppStatus nppiHistogramRange_16s_C1R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist, const **Npp32s** *pLevels, int nLevels, **Npp8u** *pBuffer)
16-bit signed histogram with bins determined by pLevels array.
- **NppStatus nppiHistogramRangeGetBufferSize_16s_C3R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)
Scratch-buffer size for nppiHistogramRange_16s_C3R.
- **NppStatus nppiHistogramRange_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[3], const **Npp32s** *pLevels[3], int nLevels[3], **Npp8u** *pBuffer)
3 channel 16-bit signed histogram with bins determined by pLevels.
- **NppStatus nppiHistogramRangeGetBufferSize_16s_C4R** (**NppiSize** oSizeROI, int nLevels[4], int *hpBufferSize)
Scratch-buffer size for nppiHistogramRange_16s_C4R.
- **NppStatus nppiHistogramRange_16s_C4R** (const **Npp16s** *pSrc, int nSrcStep, **NppiSize** oSizeROI, **Npp32s** *pHist[4], const **Npp32s** *pLevels[4], int nLevels[4], **Npp8u** *pBuffer)
4 channel 16-bit signed histogram with bins determined by pLevels.
- **NppStatus nppiHistogramRangeGetBufferSize_16s_AC4R** (**NppiSize** oSizeROI, int nLevels[3], int *hpBufferSize)
Scratch-buffer size for nppiHistogramRange_16s_AC4R.

- `NppStatus nppiHistogramRange_16s_AC4R (const Npp16s *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist[3], const Npp32s *pLevels[3], int nLevels[3], Npp8u *pBuffer)`
4 channel (alpha as a last channel) 16-bit signed histogram with bins determined by pLevels.
- `NppStatus nppiHistogramRangeGetBufferSize_32f_C1R (NppiSize oSizeROI, int nLevels, int *hpBufferSize)`
Scratch-buffer size for nppiHistogramRange_32f_C1R.
- `NppStatus nppiHistogramRange_32f_C1R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist, const Npp32f *pLevels, int nLevels, Npp8u *pBuffer)`
32-bit float histogram with bins determined by pLevels array.
- `NppStatus nppiHistogramRangeGetBufferSize_32f_C3R (NppiSize oSizeROI, int nLevels[3], int *hpBufferSize)`
Scratch-buffer size for nppiHistogramRange_32f_C3R.
- `NppStatus nppiHistogramRange_32f_C3R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist[3], const Npp32f *pLevels[3], int nLevels[3], Npp8u *pBuffer)`
3 channel 32-bit float histogram with bins determined by pLevels.
- `NppStatus nppiHistogramRangeGetBufferSize_32f_C4R (NppiSize oSizeROI, int nLevels[4], int *hpBufferSize)`
Scratch-buffer size for nppiHistogramRange_32f_C4R.
- `NppStatus nppiHistogramRange_32f_C4R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist[4], const Npp32f *pLevels[4], int nLevels[4], Npp8u *pBuffer)`
4 channel 32-bit float histogram with bins determined by pLevels.
- `NppStatus nppiHistogramRangeGetBufferSize_32f_AC4R (NppiSize oSizeROI, int nLevels[3], int *hpBufferSize)`
Scratch-buffer size for nppiHistogramRange_32f_AC4R.
- `NppStatus nppiHistogramRange_32f_AC4R (const Npp32f *pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s *pHist[3], const Npp32f *pLevels[3], int nLevels[3], Npp8u *pBuffer)`
4 channel (alpha as a last channel) 32-bit float histogram with bins determined by pLevels.

7.87.1 Function Documentation

7.87.1.1 NppStatus nppiEvenLevelsHost_32s (Npp32s * *hpLevels*, int *nLevels*, Npp32s *nLowerLevel*, Npp32s *nUpperLevel*)

Compute levels with even distribution.

Parameters:

hpLevels A host pointer to array which receives the levels being computed. The array needs to be of size *nLevels*.

nLevels The number of levels being computed. *nLevels* must be at least 2, otherwise an NPP_HISTO_NUMBER_OF_LEVELS_ERROR error is returned.

nLowerLevel Lower boundary value of the lowest level.

nUpperLevel Upper boundary value of the greatest level.

Returns:

Error code.

7.87.1.2 NppStatus nppiHistogramEven_16s_AC4R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s * pHist[3], int nLevels[3], Npp32s nLowerLevel[3], Npp32s nUpperLevel[3], Npp8u * pBuffer)

4 channel (alpha as the last channel) 16-bit signed histogram with evenly distributed bins.

Alpha channel is ignored during histogram computation.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by pHist[i] be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_16s_AC4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.3 NppStatus nppiHistogramEven_16s_C1R (const Npp16s * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s * pHist, int nLevels, Npp32s nLowerLevel, Npp32s nUpperLevel, Npp8u * pBuffer)

16-bit signed histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Pointer to array that receives the computed histogram. The array must be of size nLevels-1.

nLevels Number of levels.

nLowerLevel Lower boundary of lowest level bin.

nUpperLevel Upper boundary of highest level bin.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_16s_C1R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.4 NppStatus nppiHistogramEven_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *nSizeROI*, Npp32s * *pHist*[3], int *nLevels*[3], Npp32s *nLowerLevel*[3], Npp32s *nUpperLevel*[3], Npp8u * *pBuffer*)

3 channel 16-bit signed histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by pHist[i] be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_16s_C3R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.5 NppStatus nppiHistogramEven_16s_C4R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *nSizeROI*, Npp32s * *pHist*[4], int *nLevels*[4], Npp32s *nLowerLevel*[4], Npp32s *nUpperLevel*[4], Npp8u * *pBuffer*)

4 channel 16-bit signed histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by pHist[i] be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_16s_C4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.6 NppStatus nppiHistogramEven_16u_AC4R (const Npp16u * pSrc, int nSrcStep,
NppiSize oSizeROI, Npp32s * pHist[3], int nLevels[3], Npp32s nLowerLevel[3], Npp32s
nUpperLevel[3], Npp8u * pBuffer)**

4 channel (alpha as the last channel) 16-bit unsigned histogram with evenly distributed bins.

Alpha channel is ignored during histogram computation.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by pHist[i] be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_16u_AC4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.7 NppStatus nppiHistogramEven_16u_C1R (const Npp16u * pSrc, int nSrcStep, NppiSize
oSizeROI, Npp32s * pHist, int nLevels, Npp32s nLowerLevel, Npp32s nUpperLevel,
Npp8u * pBuffer)**

16-bit unsigned histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Pointer to array that receives the computed histogram. The array must be of size nLevels-1.

nLevels Number of levels.

nLowerLevel Lower boundary of lowest level bin.

nUpperLevel Upper boundary of highest level bin.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_16u_C1R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.8 NppStatus nppiHistogramEven_16u_C3R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *nSizeROI*, Npp32s * *pHist*[3], int *nLevels*[3], Npp32s *nLowerLevel*[3], Npp32s *nUpperLevel*[3], Npp8u * *pBuffer*)

3 channel 16-bit unsigned histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by pHist[i] be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_16u_C3R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.9 NppStatus nppiHistogramEven_16u_C4R (const Npp16u * *pSrc*, int *nSrcStep*, NppiSize *nSizeROI*, Npp32s * *pHist*[4], int *nLevels*[4], Npp32s *nLowerLevel*[4], Npp32s *nUpperLevel*[4], Npp8u * *pBuffer*)

4 channel 16-bit unsigned histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by pHist[i] be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_16u_C4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.10 NppStatus nppiHistogramEven_8u_AC4R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s * pHist[3], int nLevels[3], Npp32s nLowerLevel[3], Npp32s nUpperLevel[3], Npp8u * pBuffer)

4 channel (alpha as the last channel) 8-bit unsigned histogram with evenly distributed bins.

Alpha channel is ignored during histogram computation.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by pHist[i] be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_8u_AC4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.11 NppStatus nppiHistogramEven_8u_C1R (const Npp8u * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s * pHist, int nLevels, Npp32s nLowerLevel, Npp32s nUpperLevel, Npp8u * pBuffer)

8-bit unsigned histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Pointer to array that receives the computed histogram. The array must be of size nLevels-1.

nLevels Number of levels.

nLowerLevel Lower boundary of lowest level bin.

nUpperLevel Upper boundary of highest level bin.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_8u_C1R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.12 NppStatus nppiHistogramEven_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s **pHist*[3], int *nLevels*[3], Npp32s *nLowerLevel*[3], Npp32s *nUpperLevel*[3], Npp8u **pBuffer*)

3 channel 8-bit unsigned histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by *pHist*[i] be of size *nLevels*[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_8u_C3R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.13 NppStatus nppiHistogramEven_8u_C4R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s **pHist*[4], int *nLevels*[4], Npp32s *nLowerLevel*[4], Npp32s *nUpperLevel*[4], Npp8u **pBuffer*)

4 channel 8-bit unsigned histogram with evenly distributed bins.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving computed histograms per color channel. Array pointed by *pHist*[i] be of size *nLevels*[i]-1.

nLevels Array containing number of levels per color channel.

nLowerLevel Array containing lower-level of lowest bin per color channel.

nUpperLevel Array containing upper-level of highest bin per color channel.

pBuffer Pointer to appropriately sized (nppiHistogramEvenGetBufferSize_8u_C4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.14 NppStatus nppiHistogramEvenGetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_16s_AC4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.15 NppStatus nppiHistogramEvenGetBufferSize_16s_C1R (NppiSize *oSizeROI*, int *nLevels*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

nLevels Number of levels in the histogram.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.16 NppStatus nppiHistogramEvenGetBufferSize_16s_C3R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_16s_C3R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.17 NppStatus nppiHistogramEvenGetBufferSize_16s_C4R (NppiSize *oSizeROI*, int *nLevels*[4], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_16s_C4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.18 NppStatus nppiHistogramEvenGetBufferSize_16u_AC4R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_16u_AC4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.19 NppStatus nppiHistogramEvenGetBufferSize_16u_C1R (NppiSize *oSizeROI*, int *nLevels*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

nLevels Number of levels in the histogram.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.20 NppStatus nppiHistogramEvenGetBufferSize_16u_C3R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_16u_C3R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.21 NppStatus nppiHistogramEvenGetBufferSize_16u_C4R (NppiSize *oSizeROI*, int *nLevels*[4], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_16u_C4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.22 NppStatus nppiHistogramEvenGetBufferSize_8u_AC4R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_8u_AC4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.23 NppStatus nppiHistogramEvenGetBufferSize_8u_C1R (NppiSize *oSizeROI*, int *nLevels*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

nLevels Number of levels in the histogram.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.24 NppStatus nppiHistogramEvenGetBufferSize_8u_C3R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_8u_C3R.

Parameters:

oSizeROI Region-of-Interest (ROI).
nLevels Number of levels in the histogram.
hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.25 NppStatus nppiHistogramEvenGetBufferSize_8u_C4R (NppiSize *oSizeROI*, int *nLevels[4]*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramEven_8u_C4R.

Parameters:

oSizeROI ROI size.
nLevels Array containing number of levels per color channel.
hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.26 NppStatus nppiHistogramRange_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s * *pHist[3]*, const Npp32s * *pLevels[3]*, int *nLevels[3]*, Npp8u * *pBuffer*)

4 channel (alpha as a last channel) 16-bit signed histogram with bins determined by pLevels.

Alpha channel is ignored during the histograms computations.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
oSizeROI Region-of-Interest (ROI).
pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.
nLevels Array containing number of levels per color channel.
pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].
pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_16_AC4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.27 NppStatus nppiHistogramRange_16s_C1R (const Npp16s * pSrc, int nSrcStep,
NppiSize oSizeROI, Npp32s * pHist, const Npp32s * pLevels, int nLevels, Npp8u *
pBuffer)**

16-bit signed histogram with bins determined by pLevels array.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Pointer to array that receives the computed histogram. The array must be of size nLevels-1.

pLevels Pointer to array containing the level sizes of the bins. The array must be of size nLevels.

nLevels Number of levels in histogram.

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_16_C1R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.28 NppStatus nppiHistogramRange_16s_C3R (const Npp16s * pSrc, int nSrcStep,
NppiSize oSizeROI, Npp32s * pHist[3], const Npp32s * pLevels[3], int nLevels[3],
Npp8u * pBuffer)**

3 channel 16-bit signed histogram with bins determined by pLevels.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_16_C3R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.29 NppStatus nppiHistogramRange_16s_C4R (const Npp16s * pSrc, int nSrcStep,
NppiSize oSizeROI, Npp32s * pHist[4], const Npp32s * pLevels[4], int nLevels[4],
Npp8u * pBuffer)**

4 channel 16-bit signed histogram with bins determined by pLevels.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_16s_C4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.30 NppStatus nppiHistogramRange_16u_AC4R (const Npp16u * *pSrc*, int *nSrcStep*,
NppiSize *oSizeROI*, Npp32s * *pHist*[3], const Npp32s * *pLevels*[3], int *nLevels*[3],
Npp8u * *pBuffer*)**

4 channel (alpha as a last channel) 16-bit unsigned histogram with bins determined by pLevels.

Alpha channel is ignored during the histograms computations.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_16u_AC4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.31 NppStatus nppiHistogramRange_16u_C1R (const Npp16u * *pSrc*, int *nSrcStep*,
NppiSize *oSizeROI*, Npp32s * *pHist*, const Npp32s * *pLevels*, int *nLevels*, Npp8u *
pBuffer)**

16-bit unsigned histogram with bins determined by pLevels array.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Pointer to array that receives the computed histogram. The array must be of size nLevels-1.

pLevels Pointer to array containing the level sizes of the bins. The array must be of size nLevels.

nLevels Number of levels in histogram.

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_16u_C1R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.32 NppStatus nppiHistogramRange_16u_C3R (const Npp16u * pSrc, int nSrcStep,
NppiSize oSizeROI, Npp32s * pHist[3], const Npp32s * pLevels[3], int nLevels[3],
Npp8u * pBuffer)**

3 channel 16-bit unsigned histogram with bins determined by pLevels.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_16u_C3R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

**7.87.1.33 NppStatus nppiHistogramRange_16u_C4R (const Npp16u * pSrc, int nSrcStep,
NppiSize oSizeROI, Npp32s * pHist[4], const Npp32s * pLevels[4], int nLevels[4],
Npp8u * pBuffer)**

4 channel 16-bit unsigned histogram with bins determined by pLevels.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_16u_C4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.34 NppStatus nppiHistogramRange_32f_AC4R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s * pHist[3], const Npp32f * pLevels[3], int nLevels[3], Npp8u * pBuffer)

4 channel (alpha as a last channel) 32-bit float histogram with bins determined by pLevels.

Alpha channel is ignored during the histograms computations.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_32f_AC4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.35 NppStatus nppiHistogramRange_32f_C1R (const Npp32f * pSrc, int nSrcStep, NppiSize oSizeROI, Npp32s * pHist, const Npp32f * pLevels, int nLevels, Npp8u * pBuffer)

32-bit float histogram with bins determined by pLevels array.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Pointer to array that receives the computed histogram. The array must be of size nLevels-1.

pLevels Pointer to array containing the level sizes of the bins. The array must be of size nLevels.

nLevels Number of levels in histogram.

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_32f_C1R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.36 NppStatus nppiHistogramRange_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s * *pHist*[3], const Npp32f * *pLevels*[3], int *nLevels*[3], Npp8u * *pBuffer*)

3 channel 32-bit float histogram with bins determined by pLevels.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_32f_C3R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.37 NppStatus nppiHistogramRange_32f_C4R (const Npp32f * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s * *pHist*[4], const Npp32f * *pLevels*[4], int *nLevels*[4], Npp8u * *pBuffer*)

4 channel 32-bit float histogram with bins determined by pLevels.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_32f_C4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.38 NppStatus nppiHistogramRange_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s * *pHist*[3], const Npp32s * *pLevels*[3], int *nLevels*[3], Npp8u * *pBuffer*)

4 channel (alpha as a last channel) 8-bit unsigned histogram with bins determined by pLevels.

Alpha channel is ignored during the histograms computations.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_8u_AC4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.39 NppStatus nppiHistogramRange_8u_C1R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s **pHist*, const Npp32s **pLevels*, int *nLevels*, Npp8u **pBuffer*)

8-bit unsigned histogram with bins determined by pLevels array.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Pointer to array that receives the computed histogram. The array must be of size nLevels-1.

pLevels Pointer to array containing the level sizes of the bins. The array must be of size nLevels.

nLevels Number of levels in histogram.

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_8u_C1R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.40 NppStatus nppiHistogramRange_8u_C3R (const Npp8u **pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s **pHist*[3], const Npp32s **pLevels*[3], int *nLevels*[3], Npp8u **pBuffer*)

3 channel 8-bit unsigned histogram with bins determined by pLevels.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_8u_C3R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.41 NppStatus nppiHistogramRange_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, NppiSize *oSizeROI*, Npp32s * *pHist*[4], const Npp32s * *pLevels*[4], int *nLevels*[4], Npp8u * *pBuffer*)

4 channel 8-bit unsigned histogram with bins determined by pLevels.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pHist Array of pointers which are receiving the computed histograms per color channel. Array pointed by pHist[i] must be of size nLevels[i]-1.

nLevels Array containing number of levels per color channel.

pLevels Array containing pointers to level-arrays per color channel. Array pointed by pLevel[i] must be of size nLevels[i].

pBuffer Pointer to appropriately sized (nppiHistogramRangeGetBufferSize_8u_C4R) scratch buffer.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.87.1.42 NppStatus nppiHistogramRangeGetBufferSize_16s_AC4R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_16s_AC4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.43 NppStatus nppiHistogramRangeGetBufferSize_16s_C1R (NppiSize *oSizeROI*, int *nLevels*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_16s_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

nLevels Number of levels in the histogram.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.44 NppStatus nppiHistogramRangeGetBufferSize_16s_C3R (NppiSize *oSizeROI*, int *nLevels[3]*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_16s_C3R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.45 NppStatus nppiHistogramRangeGetBufferSize_16s_C4R (NppiSize *oSizeROI*, int *nLevels[4]*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_16s_C4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.46 NppStatus nppiHistogramRangeGetBufferSize_16u_AC4R (NppiSize *oSizeROI*, int *nLevels[3]*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_16u_AC4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.47 NppStatus nppiHistogramRangeGetBufferSize_16u_C1R (NppiSize *oSizeROI*, int *nLevels*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_16u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

nLevels Number of levels in the histogram.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.48 NppStatus nppiHistogramRangeGetBufferSize_16u_C3R (NppiSize *oSizeROI*, int *nLevels[3]*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_16u_C3R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.49 NppStatus nppiHistogramRangeGetBufferSize_16u_C4R (NppiSize *oSizeROI*, int *nLevels[4]*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_16u_C4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.50 NppStatus nppiHistogramRangeGetBufferSize_32f_AC4R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_32f_AC4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.51 NppStatus nppiHistogramRangeGetBufferSize_32f_C1R (NppiSize *oSizeROI*, int *nLevels*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_32f_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

nLevels Number of levels in the histogram.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.52 NppStatus nppiHistogramRangeGetBufferSize_32f_C3R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_32f_C3R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.53 NppStatus nppiHistogramRangeGetBufferSize_32f_C4R (NppiSize *oSizeROI*, int *nLevels*[4], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_32f_C4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.54 NppStatus nppiHistogramRangeGetBufferSize_8u_AC4R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_8u_AC4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.55 NppStatus nppiHistogramRangeGetBufferSize_8u_C1R (NppiSize *oSizeROI*, int *nLevels*, int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_8u_C1R.

Parameters:

oSizeROI Region-of-Interest (ROI).

nLevels Number of levels in the histogram.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.56 NppStatus nppiHistogramRangeGetBufferSize_8u_C3R (NppiSize *oSizeROI*, int *nLevels*[3], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_8u_C3R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.87.1.57 NppStatus nppiHistogramRangeGetBufferSize_8u_C4R (NppiSize *oSizeROI*, int *nLevels*[4], int * *hpBufferSize*)

Scratch-buffer size for nppiHistogramRange_8u_C4R.

Parameters:

oSizeROI ROI size.

nLevels Array containing number of levels per color channel.

hpBufferSize Host pointer where required buffer size is returned.

Returns:

Error Code.

7.88 Memory Management

Routines for allocating and deallocating pitched image storage.

Functions

- `void nppiFree (void *pData)`
Free method for any 2D allocated memory.

Image Memory Allocation

ImageAllocator methods for 2D arrays of data.

The allocators have width and height parameters to specify the size of the image data being allocated. They return a pointer to the newly created memory and return the numbers of bytes between successive lines.

If the memory allocation failed due to lack of free device memory or device memory fragmentation the routine returns 0.

All allocators return memory with line strides that are beneficial for performance. It is not mandatory to use these allocators. Any valid CUDA device-memory pointers can be used by the NPP primitives and there are no restrictions on line strides.

- `Npp8u * nppiMalloc_8u_C1 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
8-bit unsigned image memory allocator.
- `Npp8u * nppiMalloc_8u_C2 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
2 channel 8-bit unsigned image memory allocator.
- `Npp8u * nppiMalloc_8u_C3 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
3 channel 8-bit unsigned image memory allocator.
- `Npp8u * nppiMalloc_8u_C4 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
4 channel 8-bit unsigned image memory allocator.
- `Npp16u * nppiMalloc_16u_C1 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
16-bit unsigned image memory allocator.
- `Npp16u * nppiMalloc_16u_C2 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
2 channel 16-bit unsigned image memory allocator.
- `Npp16u * nppiMalloc_16u_C3 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
3 channel 16-bit unsigned image memory allocator.
- `Npp16u * nppiMalloc_16u_C4 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
4 channel 16-bit unsigned image memory allocator.
- `Npp16s * nppiMalloc_16s_C1 (int nWidthPixels, int nHeightPixels, int *pStepBytes)`
16-bit signed image memory allocator.

- [Npp16s * nppiMalloc_16s_C2](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
2 channel 16-bit signed image memory allocator.
- [Npp16s * nppiMalloc_16s_C4](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
4 channel 16-bit signed image memory allocator.
- [Npp16sc * nppiMalloc_16sc_C1](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
1 channel 16-bit signed complex image memory allocator.
- [Npp16sc * nppiMalloc_16sc_C2](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
2 channel 16-bit signed complex image memory allocator.
- [Npp16sc * nppiMalloc_16sc_C3](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
3 channel 16-bit signed complex image memory allocator.
- [Npp16sc * nppiMalloc_16sc_C4](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
4 channel 16-bit signed complex image memory allocator.
- [Npp32s * nppiMalloc_32s_C1](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
32-bit signed image memory allocator.
- [Npp32s * nppiMalloc_32s_C3](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
3 channel 32-bit signed image memory allocator.
- [Npp32s * nppiMalloc_32s_C4](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
4 channel 32-bit signed image memory allocator.
- [Npp32sc * nppiMalloc_32sc_C1](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
32-bit integer complex image memory allocator.
- [Npp32sc * nppiMalloc_32sc_C2](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
2 channel 32-bit integer complex image memory allocator.
- [Npp32sc * nppiMalloc_32sc_C3](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
3 channel 32-bit integer complex image memory allocator.
- [Npp32sc * nppiMalloc_32sc_C4](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
4 channel 32-bit integer complex image memory allocator.
- [Npp32f * nppiMalloc_32f_C1](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
32-bit floating point image memory allocator.
- [Npp32f * nppiMalloc_32f_C2](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
2 channel 32-bit floating point image memory allocator.
- [Npp32f * nppiMalloc_32f_C3](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
3 channel 32-bit floating point image memory allocator.
- [Npp32f * nppiMalloc_32f_C4](#) (int nWidthPixels, int nHeightPixels, int *pStepBytes)
4 channel 32-bit floating point image memory allocator.

- **Npp32fc * nppiMalloc_32fc_C1** (int nWidthPixels, int nHeightPixels, int *pStepBytes)
32-bit float complex image memory allocator.
- **Npp32fc * nppiMalloc_32fc_C2** (int nWidthPixels, int nHeightPixels, int *pStepBytes)
2 channel 32-bit float complex image memory allocator.
- **Npp32fc * nppiMalloc_32fc_C3** (int nWidthPixels, int nHeightPixels, int *pStepBytes)
3 channel 32-bit float complex image memory allocator.
- **Npp32fc * nppiMalloc_32fc_C4** (int nWidthPixels, int nHeightPixels, int *pStepBytes)
4 channel 32-bit float complex image memory allocator.

7.88.1 Detailed Description

Routines for allocating and deallocating pitched image storage.

These methods are provided for convenience. They allocate memory that may contain additional padding bytes at the end of each line of pixels. Though padding is not necessary for any of the NPP image-processing primitives to work correctly, its absence may cause severe performance degradation compared to properly padded images.

7.88.2 Function Documentation

7.88.2.1 void nppiFree (void * pData)

Free method for any 2D allocated memory.

This method should be used to free memory allocated with any of the `nppiMalloc_<modifier>` methods.

Parameters:

pData A pointer to memory allocated using `nppiMalloc_<modifier>`.

7.88.2.2 Npp16s* nppiMalloc_16s_C1 (int nWidthPixels, int nHeightPixels, int * pStepBytes)

16-bit signed image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.3 Npp16s* nppiMalloc_16s_C2 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

2 channel 16-bit signed image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.4 Npp16s* nppiMalloc_16s_C4 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

4 channel 16-bit signed image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.5 Npp16sc* nppiMalloc_16sc_C1 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

1 channel 16-bit signed complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.6 Npp16sc* nppiMalloc_16sc_C2 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

2 channel 16-bit signed complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.7 Npp16sc* nppiMalloc_16sc_C3 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

3 channel 16-bit signed complex image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.8 Npp16sc* nppiMalloc_16sc_C4 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

4 channel 16-bit signed complex image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.9 Npp16u* nppiMalloc_16u_C1 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

16-bit unsigned image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.10 Npp16u* nppiMalloc_16u_C2 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

2 channel 16-bit unsigned image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.11 Npp16u* nppiMalloc_16u_C3 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

3 channel 16-bit unsigned image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.12 Npp16u* nppiMalloc_16u_C4 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

4 channel 16-bit unsigned image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.13 Npp32f* nppiMalloc_32f_C1 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

32-bit floating point image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.14 Npp32f* nppiMalloc_32f_C2 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

2 channel 32-bit floating point image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.15 Npp32f* nppiMalloc_32f_C3 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

3 channel 32-bit floating point image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.16 Npp32f* nppiMalloc_32f_C4 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

4 channel 32-bit floating point image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.88.2.17 Npp32fc* nppiMalloc_32fc_C1 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

32-bit float complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.18 Npp32fc* nppiMalloc_32fc_C2 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

2 channel 32-bit float complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.19 Npp32fc* nppiMalloc_32fc_C3 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

3 channel 32-bit float complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.20 Npp32fc* nppiMalloc_32fc_C4 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

4 channel 32-bit float complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.

pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.21 Npp32s* nppiMalloc_32s_C1 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

32-bit signed image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.22 Npp32s* nppiMalloc_32s_C3 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

3 channel 32-bit signed image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.23 Npp32s* nppiMalloc_32s_C4 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

4 channel 32-bit signed image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.24 Npp32sc* nppiMalloc_32sc_C1 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

32-bit integer complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.25 Npp32sc* nppiMalloc_32sc_C2 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

2 channel 32-bit integer complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.26 Npp32sc* nppiMalloc_32sc_C3 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

3 channel 32-bit integer complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.
pStepBytes [Line Step](#).

Returns:

Pointer to new image data.

7.88.2.27 Npp32sc* nppiMalloc_32sc_C4 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

4 channel 32-bit integer complex image memory allocator.

Parameters:

nWidthPixels Image width.
nHeightPixels Image height.

pStepBytes [Line Step.](#)

Returns:

Pointer to new image data.

7.88.2.28 Npp8u* nppiMalloc_8u_C1 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

8-bit unsigned image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes [Line Step.](#)

Returns:

Pointer to new image data.

7.88.2.29 Npp8u* nppiMalloc_8u_C2 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

2 channel 8-bit unsigned image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes [Line Step.](#)

Returns:

Pointer to new image data.

7.88.2.30 Npp8u* nppiMalloc_8u_C3 (int *nWidthPixels*, int *nHeightPixels*, int * *pStepBytes*)

3 channel 8-bit unsigned image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes [Line Step.](#)

Returns:

Pointer to new image data.

7.88.2.31 Npp8u* nppiMalloc_8u_C4 (int *nWidthPixels*, int *nHeightPixels*, int **pStepBytes*)

4 channel 8-bit unsigned image memory allocator.

Parameters:

nWidthPixels Image width.

nHeightPixels Image height.

pStepBytes Line Step.

Returns:

Pointer to new image data.

7.89 Threshold and Compare Operations

Methods for pixel-wise threshold and compare operations.

Modules

- [Threshold Operations](#)

Threshold image pixels.

- [Compare Operations](#)

Compare the pixels of two images and create a binary result image.

7.89.1 Detailed Description

Methods for pixel-wise threshold and compare operations.

7.90 Threshold Operations

Threshold image pixels.

Functions

- `NppStatus nppiThreshold_8u_C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI, const Npp8u nThreshold, NppCmpOp eComparisonOperation)`
1 channel 8-bit unsigned char threshold.
- `NppStatus nppiThreshold_8u_C1IR (Npp8u *pSrcDst, int nSrcDstStep, NppSize oSizeROI, const Npp8u nThreshold, NppCmpOp eComparisonOperation)`
1 channel 8-bit unsigned char in place threshold.
- `NppStatus nppiThreshold_16u_C1R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppSize oSizeROI, const Npp16u nThreshold, NppCmpOp eComparisonOperation)`
1 channel 16-bit unsigned short threshold.
- `NppStatus nppiThreshold_16u_C1IR (Npp16u *pSrcDst, int nSrcDstStep, NppSize oSizeROI, const Npp16u nThreshold, NppCmpOp eComparisonOperation)`
1 channel 16-bit unsigned short in place threshold.
- `NppStatus nppiThreshold_16s_C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppSize oSizeROI, const Npp16s nThreshold, NppCmpOp eComparisonOperation)`
1 channel 16-bit signed short threshold.
- `NppStatus nppiThreshold_16s_C1IR (Npp16s *pSrcDst, int nSrcDstStep, NppSize oSizeROI, const Npp16s nThreshold, NppCmpOp eComparisonOperation)`
1 channel 16-bit signed short in place threshold.
- `NppStatus nppiThreshold_32f_C1R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppSize oSizeROI, const Npp32f nThreshold, NppCmpOp eComparisonOperation)`
1 channel 32-bit floating point threshold.
- `NppStatus nppiThreshold_32f_C1IR (Npp32f *pSrcDst, int nSrcDstStep, NppSize oSizeROI, const Npp32f nThreshold, NppCmpOp eComparisonOperation)`
1 channel 32-bit floating point in place threshold.
- `NppStatus nppiThreshold_8u_C3R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI, const Npp8u rThresholds[3], NppCmpOp eComparisonOperation)`
3 channel 8-bit unsigned char threshold.
- `NppStatus nppiThreshold_8u_C3IR (Npp8u *pSrcDst, int nSrcDstStep, NppSize oSizeROI, const Npp8u rThresholds[3], NppCmpOp eComparisonOperation)`
3 channel 8-bit unsigned char in place threshold.
- `NppStatus nppiThreshold_16u_C3R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppSize oSizeROI, const Npp16u rThresholds[3], NppCmpOp eComparisonOperation)`
3 channel 16-bit unsigned short threshold.

- **NppStatus nppiThreshold_16u_C3IR** (*Npp16u *pSrcDst, int nSrcDstStep, NppSize oSizeROI, const Npp16u rThresholds[3], NppCmpOp eComparisonOperation*)
3 channel 16-bit unsigned short in place threshold.
- **NppStatus nppiThreshold_16s_C3R** (*const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppSize oSizeROI, const Npp16s rThresholds[3], NppCmpOp eComparisonOperation*)
3 channel 16-bit signed short threshold.
- **NppStatus nppiThreshold_16s_C3IR** (*Npp16s *pSrcDst, int nSrcDstStep, NppSize oSizeROI, const Npp16s rThresholds[3], NppCmpOp eComparisonOperation*)
3 channel 16-bit signed short in place threshold.
- **NppStatus nppiThreshold_32f_C3R** (*const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppSize oSizeROI, const Npp32f rThresholds[3], NppCmpOp eComparisonOperation*)
3 channel 32-bit floating point threshold.
- **NppStatus nppiThreshold_32f_C3IR** (*Npp32f *pSrcDst, int nSrcDstStep, NppSize oSizeROI, const Npp32f rThresholds[3], NppCmpOp eComparisonOperation*)
3 channel 32-bit floating point in place threshold.
- **NppStatus nppiThreshold_8u_AC4R** (*const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppSize oSizeROI, const Npp8u rThresholds[3], NppCmpOp eComparisonOperation*)
4 channel 8-bit unsigned char image threshold, not affecting Alpha.
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1 channel 8-bit unsigned char threshold.

- **NppStatus nppiThreshold_LT_8u_C1IR** (*Npp8u *pSrcDst*, *int nSrcDstStep*, *NppiSize oSizeROI*, *const Npp8u nThreshold*)
1 channel 8-bit unsigned char in place threshold.
- **NppStatus nppiThreshold_LT_16u_C1R** (*const Npp16u *pSrc*, *int nSrcStep*, *Npp16u *pDst*, *int nDstStep*, *NppiSize oSizeROI*, *const Npp16u nThreshold*)
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- **NppStatus nppiThreshold_GTVal_8u_C3IR** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const **Npp8u** rThresholds[3], const **Npp8u** rValues[3])

3 channel 8-bit unsigned char in place threshold.
- **NppStatus nppiThreshold_GTVal_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp16u** rThresholds[3], const **Npp16u** rValues[3])

3 channel 16-bit unsigned short threshold.
- **NppStatus nppiThreshold_GTVal_16u_C3IR** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const **Npp16u** rThresholds[3], const **Npp16u** rValues[3])

3 channel 16-bit unsigned short in place threshold.
- **NppStatus nppiThreshold_GTVal_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp16s** rThresholds[3], const **Npp16s** rValues[3])

3 channel 16-bit signed short threshold.

- **NppStatus nppiThreshold_GTVal_16s_C3IR** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3], const Npp16s rValues[3]`)

3 channel 16-bit signed short in place threshold.
- **NppStatus nppiThreshold_GTVal_32f_C3R** (`const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3]`)

3 channel 32-bit floating point threshold.
- **NppStatus nppiThreshold_GTVal_32f_C3IR** (`Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3]`)

3 channel 32-bit floating point in place threshold.
- **NppStatus nppiThreshold_GTVal_8u_AC4R** (`const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3]`)

4 channel 8-bit unsigned char image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_GTVal_8u_AC4IR** (`Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3]`)

4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_GTVal_16u_AC4R** (`const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3]`)

4 channel 16-bit unsigned short image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_GTVal_16u_AC4IR** (`Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3]`)

4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_GTVal_16s_AC4R** (`const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3], const Npp16s rValues[3]`)

4 channel 16-bit signed short image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_GTVal_16s_AC4IR** (`Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3], const Npp16s rValues[3]`)

4 channel 16-bit signed short in place image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_GTVal_32f_AC4R** (`const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3]`)

4 channel 32-bit floating point image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_GTVal_32f_AC4IR** (`Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3]`)

4 channel 32-bit floating point in place image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_LTVal_8u_C1R** (`const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp8u nThreshold, const Npp8u nValue`)

1 channel 8-bit unsigned char threshold.
- **NppStatus nppiThreshold_LTVal_8u_C1IR** (`Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u nThreshold, const Npp8u nValue`)

1 channel 8-bit unsigned char in place threshold.

- **NppStatus nppiThreshold_LTVal_16u_C1R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp16u** nThreshold, const **Npp16u** nValue)

1 channel 16-bit unsigned short threshold.

- **NppStatus nppiThreshold_LTVal_16u_C1IR** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const **Npp16u** nThreshold, const **Npp16u** nValue)

1 channel 16-bit unsigned short in place threshold.

- **NppStatus nppiThreshold_LTVal_16s_C1R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp16s** nThreshold, const **Npp16s** nValue)

1 channel 16-bit signed short threshold.

- **NppStatus nppiThreshold_LTVal_16s_C1IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const **Npp16s** nThreshold, const **Npp16s** nValue)

1 channel 16-bit signed short in place threshold.

- **NppStatus nppiThreshold_LTVal_32f_C1R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp32f** nThreshold, const **Npp32f** nValue)

1 channel 32-bit floating point threshold.

- **NppStatus nppiThreshold_LTVal_32f_C1IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const **Npp32f** nThreshold, const **Npp32f** nValue)

1 channel 32-bit floating point in place threshold.

- **NppStatus nppiThreshold_LTVal_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp8u** rThresholds[3], const **Npp8u** rValues[3])

3 channel 8-bit unsigned char threshold.

- **NppStatus nppiThreshold_LTVal_8u_C3IR** (**Npp8u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const **Npp8u** rThresholds[3], const **Npp8u** rValues[3])

3 channel 8-bit unsigned char in place threshold.

- **NppStatus nppiThreshold_LTVal_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp16u** rThresholds[3], const **Npp16u** rValues[3])

3 channel 16-bit unsigned short threshold.

- **NppStatus nppiThreshold_LTVal_16u_C3IR** (**Npp16u** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const **Npp16u** rThresholds[3], const **Npp16u** rValues[3])

3 channel 16-bit unsigned short in place threshold.

- **NppStatus nppiThreshold_LTVal_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppiSize** oSizeROI, const **Npp16s** rThresholds[3], const **Npp16s** rValues[3])

3 channel 16-bit signed short threshold.

- **NppStatus nppiThreshold_LTVal_16s_C3IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **NppiSize** oSizeROI, const **Npp16s** rThresholds[3], const **Npp16s** rValues[3])

3 channel 16-bit signed short in place threshold.

- `NppStatus nppiThreshold_LTVal_32f_C3R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3])`
3 channel 32-bit floating point threshold.
- `NppStatus nppiThreshold_LTVal_32f_C3IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3])`
3 channel 32-bit floating point in place threshold.
- `NppStatus nppiThreshold_LTVal_8u_AC4R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3])`
4 channel 8-bit unsigned char image threshold, not affecting Alpha.
- `NppStatus nppiThreshold_LTVal_8u_AC4IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3])`
4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.
- `NppStatus nppiThreshold_LTVal_16u_AC4R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3])`
4 channel 16-bit unsigned short image threshold, not affecting Alpha.
- `NppStatus nppiThreshold_LTVal_16u_AC4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3])`
4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.
- `NppStatus nppiThreshold_LTVal_16s_AC4R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3], const Npp16s rValues[3])`
4 channel 16-bit signed short image threshold, not affecting Alpha.
- `NppStatus nppiThreshold_LTVal_16s_AC4IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3], const Npp16s rValues[3])`
4 channel 16-bit signed short in place image threshold, not affecting Alpha.
- `NppStatus nppiThreshold_LTVal_32f_AC4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3])`
4 channel 32-bit floating point image threshold, not affecting Alpha.
- `NppStatus nppiThreshold_LTVal_32f_AC4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3])`
4 channel 32-bit floating point in place image threshold, not affecting Alpha.
- `NppStatus nppiThreshold_LTValGTVal_8u_C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp8u nThresholdLT, const Npp8u nValueLT, const Npp8u nThresholdGT, const Npp8u nValueGT)`
1 channel 8-bit unsigned char threshold.
- `NppStatus nppiThreshold_LTValGTVal_8u_C1IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u nThresholdLT, const Npp8u nValueLT, const Npp8u nThresholdGT, const Npp8u nValueGT)`
1 channel 8-bit unsigned char in place threshold.

- `NppStatus nppiThreshold_LTValGTVal_16u_C1R` (const `Npp16u *pSrc`, int `nSrcStep`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, const `Npp16u nThresholdLT`, const `Npp16u nValueLT`, const `Npp16u nThresholdGT`, const `Npp16u nValueGT`)

1 channel 16-bit unsigned short threshold.

- `NppStatus nppiThreshold_LTValGTVal_16u_C1IR` (`Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, const `Npp16u nThresholdLT`, const `Npp16u nValueLT`, const `Npp16u nThresholdGT`, const `Npp16u nValueGT`)

1 channel 16-bit unsigned short in place threshold.

- `NppStatus nppiThreshold_LTValGTVal_16s_C1R` (const `Npp16s *pSrc`, int `nSrcStep`, `Npp16s *pDst`, int `nDstStep`, `NppiSize oSizeROI`, const `Npp16s nThresholdLT`, const `Npp16s nValueLT`, const `Npp16s nThresholdGT`, const `Npp16s nValueGT`)

1 channel 16-bit signed short threshold.

- `NppStatus nppiThreshold_LTValGTVal_16s_C1IR` (`Npp16s *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, const `Npp16s nThresholdLT`, const `Npp16s nValueLT`, const `Npp16s nThresholdGT`, const `Npp16s nValueGT`)

1 channel 16-bit signed short in place threshold.

- `NppStatus nppiThreshold_LTValGTVal_32f_C1R` (const `Npp32f *pSrc`, int `nSrcStep`, `Npp32f *pDst`, int `nDstStep`, `NppiSize oSizeROI`, const `Npp32f nThresholdLT`, const `Npp32f nValueLT`, const `Npp32f nThresholdGT`, const `Npp32f nValueGT`)

1 channel 32-bit floating point threshold.

- `NppStatus nppiThreshold_LTValGTVal_32f_C1IR` (`Npp32f *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, const `Npp32f nThresholdLT`, const `Npp32f nValueLT`, const `Npp32f nThresholdGT`, const `Npp32f nValueGT`)

1 channel 32-bit floating point in place threshold.

- `NppStatus nppiThreshold_LTValGTVal_8u_C3R` (const `Npp8u *pSrc`, int `nSrcStep`, `Npp8u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, const `Npp8u rThresholdsLT[3]`, const `Npp8u rValuesLT[3]`, const `Npp8u rThresholdsGT[3]`, const `Npp8u rValuesGT[3]`)

3 channel 8-bit unsigned char threshold.

- `NppStatus nppiThreshold_LTValGTVal_8u_C3IR` (`Npp8u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, const `Npp8u rThresholdsLT[3]`, const `Npp8u rValuesLT[3]`, const `Npp8u rThresholdsGT[3]`, const `Npp8u rValuesGT[3]`)

3 channel 8-bit unsigned char in place threshold.

- `NppStatus nppiThreshold_LTValGTVal_16u_C3R` (const `Npp16u *pSrc`, int `nSrcStep`, `Npp16u *pDst`, int `nDstStep`, `NppiSize oSizeROI`, const `Npp16u rThresholdsLT[3]`, const `Npp16u rValuesLT[3]`, const `Npp16u rThresholdsGT[3]`, const `Npp16u rValuesGT[3]`)

3 channel 16-bit unsigned short threshold.

- `NppStatus nppiThreshold_LTValGTVal_16u_C3IR` (`Npp16u *pSrcDst`, int `nSrcDstStep`, `NppiSize oSizeROI`, const `Npp16u rThresholdsLT[3]`, const `Npp16u rValuesLT[3]`, const `Npp16u rThresholdsGT[3]`, const `Npp16u rValuesGT[3]`)

3 channel 16-bit unsigned short in place threshold.

- **NppStatus nppiThreshold_LTValGTVal_16s_C3R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp16s** rThresholdsLT[3], const **Npp16s** rValuesLT[3], const **Npp16s** rThresholdsGT[3], const **Npp16s** rValuesGT[3])
3 channel 16-bit signed short threshold.
- **NppStatus nppiThreshold_LTValGTVal_16s_C3IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **Nppi-Size** oSizeROI, const **Npp16s** rThresholdsLT[3], const **Npp16s** rValuesLT[3], const **Npp16s** rThresholdsGT[3], const **Npp16s** rValuesGT[3])
3 channel 16-bit signed short in place threshold.
- **NppStatus nppiThreshold_LTValGTVal_32f_C3R** (const **Npp32f** *pSrc, int nSrcStep, **Npp32f** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp32f** rThresholdsLT[3], const **Npp32f** rValuesLT[3], const **Npp32f** rThresholdsGT[3], const **Npp32f** rValuesGT[3])
3 channel 32-bit floating point threshold.
- **NppStatus nppiThreshold_LTValGTVal_32f_C3IR** (**Npp32f** *pSrcDst, int nSrcDstStep, **Nppi-Size** oSizeROI, const **Npp32f** rThresholdsLT[3], const **Npp32f** rValuesLT[3], const **Npp32f** rThresholdsGT[3], const **Npp32f** rValuesGT[3])
3 channel 32-bit floating point in place threshold.
- **NppStatus nppiThreshold_LTValGTVal_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp8u** rThresholdsLT[3], const **Npp8u** rValuesLT[3], const **Npp8u** rThresholdsGT[3], const **Npp8u** rValuesGT[3])
4 channel 8-bit unsigned char image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_LTValGTVal_8u_AC4IR** (**Npp8u** *pSrcDst, int nSrcDstStep, **Nppi-Size** oSizeROI, const **Npp8u** rThresholdsLT[3], const **Npp8u** rValuesLT[3], const **Npp8u** rThresholdsGT[3], const **Npp8u** rValuesGT[3])
4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_LTValGTVal_16u_AC4R** (const **Npp16u** *pSrc, int nSrcStep, **Npp16u** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp16u** rThresholdsLT[3], const **Npp16u** rValuesLT[3], const **Npp16u** rThresholdsGT[3], const **Npp16u** rValuesGT[3])
4 channel 16-bit unsigned short image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_LTValGTVal_16u_AC4IR** (**Npp16u** *pSrcDst, int nSrcDstStep, **Nppi-Size** oSizeROI, const **Npp16u** rThresholdsLT[3], const **Npp16u** rValuesLT[3], const **Npp16u** rThresholdsGT[3], const **Npp16u** rValuesGT[3])
4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_LTValGTVal_16s_AC4R** (const **Npp16s** *pSrc, int nSrcStep, **Npp16s** *pDst, int nDstStep, **NppSize** oSizeROI, const **Npp16s** rThresholdsLT[3], const **Npp16s** rValuesLT[3], const **Npp16s** rThresholdsGT[3], const **Npp16s** rValuesGT[3])
4 channel 16-bit signed short image threshold, not affecting Alpha.
- **NppStatus nppiThreshold_LTValGTVal_16s_AC4IR** (**Npp16s** *pSrcDst, int nSrcDstStep, **Nppi-Size** oSizeROI, const **Npp16s** rThresholdsLT[3], const **Npp16s** rValuesLT[3], const **Npp16s** rThresholdsGT[3], const **Npp16s** rValuesGT[3])
4 channel 16-bit signed short in place image threshold, not affecting Alpha.

- **NppStatus nppiThreshold_LTValGTVal_32f_AC4R** (const **Npp32f** **pSrc*, int *nSrcStep*, **Npp32f** **pDst*, int *nDstStep*, **NppiSize** *oSizeROI*, const **Npp32f** *rThresholdsLT*[3], const **Npp32f** *rValuesLT*[3], const **Npp32f** *rThresholdsGT*[3], const **Npp32f** *rValuesGT*[3])

4 channel 32-bit floating point image threshold, not affecting Alpha.

- **NppStatus nppiThreshold_LTValGTVal_32f_AC4IR** (**Npp32f** **pSrcDst*, int *nSrcDstStep*, **NppiSize** *oSizeROI*, const **Npp32f** *rThresholdsLT*[3], const **Npp32f** *rValuesLT*[3], const **Npp32f** *rThresholdsGT*[3], const **Npp32f** *rValuesGT*[3])

4 channel 32-bit floating point in place image threshold, not affecting Alpha.

7.90.1 Detailed Description

Threshold image pixels.

7.90.2 Function Documentation

7.90.2.1 NppStatus nppiThreshold_16s_AC4IR (**Npp16s** **pSrcDst*, int *nSrcDstStep*, **NppiSize** *oSizeROI*, const **Npp16s** *rThresholds*[3], **NppCmpOp** *eComparisonOperation*)

4 channel 16-bit signed short in place image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or [NPP_NOT_SUPPORTED_MODE_ERROR](#) if an invalid comparison operation type is specified.

7.90.2.2 NppStatus nppiThreshold_16s_AC4R (const **Npp16s** **pSrc*, int *nSrcStep*, **Npp16s** **pDst*, int *nDstStep*, **NppiSize** *oSizeROI*, const **Npp16s** *rThresholds*[3], **NppCmpOp** *eComparisonOperation*)

4 channel 16-bit signed short image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.3 NppStatus nppiThreshold_16s_C1IR (Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16s *nThreshold*, NppCmpOp *eComparisonOperation*)

1 channel 16-bit signed short in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.4 NppStatus nppiThreshold_16s_C1R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *nThreshold*, NppCmpOp *eComparisonOperation*)

1 channel 16-bit signed short threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.5 NppStatus nppiThreshold_16s_C3IR (*Npp16s * pSrcDst*, *int nSrcDstStep*, *NppiSize oSizeROI*, *const Npp16s rThresholds[3]*, *NppCmpOp eComparisonOperation*)

3 channel 16-bit signed short in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.6 NppStatus nppiThreshold_16s_C3R (*const Npp16s * pSrc*, *int nSrcStep*, *Npp16s * pDst*, *int nDstStep*, *NppiSize oSizeROI*, *const Npp16s rThresholds[3]*, *NppCmpOp eComparisonOperation*)

3 channel 16-bit signed short threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or `NPP_NOT_SUPPORTED_MODE_-ERROR` if an invalid comparison operation type is specified.

7.90.2.7 NppStatus nppiThreshold_16u_AC4IR (`Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], NppCmpOp eComparisonOperation`)

4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (`sourcePixel.channel OP nThreshold`) is true, the channel value is set to `nThreshold`, otherwise it is set to `sourcePixel`.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: `NPP_CMP_LESS` and `NPP_CMP_GREATER`.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or `NPP_NOT_SUPPORTED_MODE_-ERROR` if an invalid comparison operation type is specified.

7.90.2.8 NppStatus nppiThreshold_16u_AC4R (`const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], NppCmpOp eComparisonOperation`)

4 channel 16-bit unsigned short image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (`sourcePixel.channel OP nThreshold`) is true, the channel value is set to `nThreshold`, otherwise it is set to `sourcePixel`.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: `NPP_CMP_LESS` and `NPP_CMP_GREATER`.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or `NPP_NOT_SUPPORTED_MODE_-ERROR` if an invalid comparison operation type is specified.

7.90.2.9 NppStatus nppiThreshold_16u_C1IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u nThreshold, NppCmpOp eComparisonOperation)

1 channel 16-bit unsigned short in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

- pSrcDst* In-Place Image Pointer.
- nSrcDstStep* In-Place-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nThreshold* The threshold value.
- eComparisonOperation* The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.10 NppStatus nppiThreshold_16u_C1R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u nThreshold, NppCmpOp eComparisonOperation)

1 channel 16-bit unsigned short threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

- pSrc* Source-Image Pointer.
- nSrcStep* Source-Image Line Step.
- pDst* Destination-Image Pointer.
- nDstStep* Destination-Image Line Step.
- oSizeROI* Region-of-Interest (ROI).
- nThreshold* The threshold value.
- eComparisonOperation* The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.11 NppStatus nppiThreshold_16u_C3IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], NppCmpOp eComparisonOperation)

3 channel 16-bit unsigned short in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.12 NppStatus nppiThreshold_16u_C3R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds*[3], NppCmpOp *eComparisonOperation*)

3 channel 16-bit unsigned short threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.13 NppStatus nppiThreshold_32f_AC4IR (Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], NppCmpOp *eComparisonOperation*)

4 channel 32-bit floating point in place image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.14 NppStatus nppiThreshold_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], NppCmpOp *eComparisonOperation*)

4 channel 32-bit floating point image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.15 NppStatus nppiThreshold_32f_C1IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *nThreshold*, NppCmpOp *eComparisonOperation*)

1 channel 32-bit floating point in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or `NPP_NOT_SUPPORTED_MODE_ERROR` if an invalid comparison operation type is specified.

7.90.2.16 `NppStatus nppiThreshold_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, const Npp32f nThreshold, NppCmpOp eComparisonOperation)`

1 channel 32-bit floating point threshold.

If for a comparison operations OP the predicate (`sourcePixel OP nThreshold`) is true, the pixel is set to `nThreshold`, otherwise it is set to `sourcePixel`.

Parameters:

`pSrc` Source-Image Pointer.

`nSrcStep` Source-Image Line Step.

`pDst` Destination-Image Pointer.

`nDstStep` Destination-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

`nThreshold` The threshold value.

`eComparisonOperation` The type of comparison operation to be used. The only valid values are: `NPP_CMP_LESS` and `NPP_CMP_GREATER`.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or `NPP_NOT_SUPPORTED_MODE_ERROR` if an invalid comparison operation type is specified.

7.90.2.17 `NppStatus nppiThreshold_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], NppCmpOp eComparisonOperation)`

3 channel 32-bit floating point in place threshold.

If for a comparison operations OP the predicate (`sourcePixel OP nThreshold`) is true, the pixel is set to `nThreshold`, otherwise it is set to `sourcePixel`.

Parameters:

`pSrcDst` In-Place Image Pointer.

`nSrcDstStep` In-Place-Image Line Step.

`oSizeROI` Region-of-Interest (ROI).

`rThresholds` The threshold values, one per color channel.

`eComparisonOperation` The type of comparison operation to be used. The only valid values are: `NPP_CMP_LESS` and `NPP_CMP_GREATER`.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or `NPP_NOT_SUPPORTED_MODE_ERROR` if an invalid comparison operation type is specified.

7.90.2.18 NppStatus nppiThreshold_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], NppCmpOp *eComparisonOperation*)

3 channel 32-bit floating point threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.19 NppStatus nppiThreshold_8u_AC4IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3], NppCmpOp *eComparisonOperation*)

4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.20 NppStatus nppiThreshold_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3], NppCmpOp *eComparisonOperation*)

4 channel 8-bit unsigned char image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.21 NppStatus nppiThreshold_8u_C1IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *nThreshold*, NppCmpOp *eComparisonOperation*)

1 channel 8-bit unsigned char in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.22 NppStatus nppiThreshold_8u_C1R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *nThreshold*, NppCmpOp *eComparisonOperation*)

1 channel 8-bit unsigned char threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.23 NppStatus nppiThreshold_8u_C3IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds[3]*, NppCmpOp *eComparisonOperation*)

3 channel 8-bit unsigned char in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.24 NppStatus nppiThreshold_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds[3]*, NppCmpOp *eComparisonOperation*)

3 channel 8-bit unsigned char threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.25 NppStatus nppiThreshold_GT_16s_AC4IR (Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds[3]*)

4 channel 16-bit signed short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.26 NppStatus nppiThreshold_GT_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds[3]*)

4 channel 16-bit signed short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.27 NppStatus nppiThreshold_GT_16s_C1IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s nThreshold)

1 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.28 NppStatus nppiThreshold_GT_16s_C1R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, const Npp16s nThreshold)

1 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.29 NppStatus nppiThreshold_GT_16s_C3IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3])

3 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.30 NppStatus nppiThreshold_GT_16s_C3R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3])

3 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.31 NppStatus nppiThreshold_GT_16u_AC4IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3])

4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.32 NppStatus nppiThreshold_GT_16u_AC4R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3])

4 channel 16-bit unsigned short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.33 NppStatus nppiThreshold_GT_16u_C1IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u nThreshold)

1 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.34 NppStatus nppiThreshold_GT_16u_C1R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u *nThreshold*)

1 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.35 NppStatus nppiThreshold_GT_16u_C3IR (Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds[3]*)

3 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.36 NppStatus nppiThreshold_GT_16u_C3R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds[3]*)

3 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.37 NppStatus nppiThreshold_GT_32f_AC4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3])

4 channel 32-bit floating point in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.38 NppStatus nppiThreshold_GT_32f_AC4R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3])

4 channel 32-bit floating point image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.39 NppStatus nppiThreshold_GT_32f_C1IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f nThreshold)

1 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.40 NppStatus nppiThreshold_GT_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, const Npp32f nThreshold)

1 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.41 NppStatus nppiThreshold_GT_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3])

3 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.42 NppStatus nppiThreshold_GT_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3])

3 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.43 NppStatus nppiThreshold_GT_8u_AC4IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3])

4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.44 NppStatus nppiThreshold_GT_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3])

4 channel 8-bit unsigned char image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.45 NppStatus nppiThreshold_GT_8u_C1IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *nThreshold*)

1 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.46 NppStatus nppiThreshold_GT_8u_C1R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *nThreshold*)

1 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.47 NppStatus nppiThreshold_GT_8u_C3IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3])

3 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.48 NppStatus nppiThreshold_GT_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3])

3 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

**7.90.2.49 NppStatus nppiThreshold_GTVal_16s_AC4IR (Npp16s * pSrcDst, int nSrcDstStep,
NppiSize oSizeROI, const Npp16s rThresholds[3], const Npp16s rValues[3])**

4 channel 16-bit signed short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.50 NppStatus nppiThreshold_GTVal_16s_AC4R (const Npp16s * pSrc, int nSrcStep,
Npp16s * pDst, int nDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3], const
Npp16s rValues[3])**

4 channel 16-bit signed short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.51 NppStatus nppiThreshold_GTVal_16s_C1IR (Npp16s * pSrcDst, int nSrcDstStep,
NppiSize oSizeROI, const Npp16s nThreshold, const Npp16s nValue)**

1 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.52 NppStatus nppiThreshold_GTVal_16s_C1R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *nThreshold*, const Npp16s *nValue*)

1 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.53 NppStatus nppiThreshold_GTVal_16s_C3IR (Npp16s **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds*[3], const Npp16s *rValues*[3])

3 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.54 NppStatus nppiThreshold_GTVal_16s_C3R (const Npp16s **pSrc*, int *nSrcStep*, Npp16s **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds*[3], const Npp16s *rValues*[3])

3 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.55 NppStatus nppiThreshold_GTVal_16u_AC4IR (Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds*[3], const Npp16u *rValues*[3])

4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.56 NppStatus nppiThreshold_GTVal_16u_AC4R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds*[3], const Npp16u *rValues*[3])

4 channel 16-bit unsigned short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.57 NppStatus nppiThreshold_GTVal_16u_C1IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u nThreshold, const Npp16u nValue)

1 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.58 NppStatus nppiThreshold_GTVal_16u_C1R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u nThreshold, const Npp16u nValue)

1 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.59 NppStatus nppiThreshold_GTVal_16u_C3IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3])

3 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.60 NppStatus nppiThreshold_GTVal_16u_C3R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3])

3 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.61 NppStatus nppiThreshold_GTVal_32f_AC4IR (Npp32f * *pSrcDst*, int *nSrcDstStep*,
NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], const Npp32f *rValues*[3])**

4 channel 32-bit floating point in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.62 NppStatus nppiThreshold_GTVal_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*,
Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], const
Npp32f *rValues*[3])**

4 channel 32-bit floating point image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.63 NppStatus nppiThreshold_GTVal_32f_C1IR (Npp32f * *pSrcDst*, int *nSrcDstStep*,
NppiSize *oSizeROI*, const Npp32f *nThreshold*, const Npp32f *nValue*)**

1 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.64 NppStatus nppiThreshold_GTVal_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *nThreshold*, const Npp32f *nValue*)

1 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.65 NppStatus nppiThreshold_GTVal_32f_C3IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], const Npp32f *rValues*[3])

3 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.66 NppStatus nppiThreshold_GTVal_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], const Npp32f *rValues*[3])

3 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.67 NppStatus nppiThreshold_GTVal_8u_AC4IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3], const Npp8u *rValues*[3])

4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.68 NppStatus nppiThreshold_GTVal_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3], const Npp8u *rValues*[3])

4 channel 8-bit unsigned char image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.69 NppStatus nppiThreshold_GTVal_8u_C1IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u nThreshold, const Npp8u nValue)

1 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.70 NppStatus nppiThreshold_GTVal_8u_C1R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u nThreshold, const Npp8u nValue)

1 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is greater than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.71 NppStatus nppiThreshold_GTVal_8u_C3IR (Npp8u * pSrcDst, int nSrcDstStep,
NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3])**

3 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.72 NppStatus nppiThreshold_GTVal_8u_C3R (const Npp8u * pSrc, int nSrcStep, Npp8u *
pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u
rValues[3])**

3 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is greater than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.73 NppStatus nppiThreshold_LT_16s_AC4IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3])

4 channel 16-bit signed short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.74 NppStatus nppiThreshold_LT_16s_AC4R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3])

4 channel 16-bit signed short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.75 NppStatus nppiThreshold_LT_16s_C1IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s nThreshold)

1 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.76 NppStatus nppiThreshold_LT_16s_C1R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, const Npp16s nThreshold)

1 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.77 NppStatus nppiThreshold_LT_16s_C3IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3])

3 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.78 NppStatus nppiThreshold_LT_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds[3]*)

3 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.79 NppStatus nppiThreshold_LT_16u_AC4IR (Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds[3]*)

4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.80 NppStatus nppiThreshold_LT_16u_AC4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds[3]*)

4 channel 16-bit unsigned short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.81 NppStatus nppiThreshold_LT_16u_C1IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u nThreshold)

1 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.82 NppStatus nppiThreshold_LT_16u_C1R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u nThreshold)

1 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.83 NppStatus nppiThreshold_LT_16u_C3IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3])

3 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.84 NppStatus nppiThreshold_LT_16u_C3R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3])

3 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.85 NppStatus nppiThreshold_LT_32f_AC4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3])

4 channel 32-bit floating point in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.86 NppStatus nppiThreshold_LT_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3])

4 channel 32-bit floating point image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.87 NppStatus nppiThreshold_LT_32f_C1IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *nThreshold*)

1 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.88 NppStatus nppiThreshold_LT_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *nThreshold*)

1 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.89 NppStatus nppiThreshold_LT_32f_C3IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds[3]*)

3 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.90 NppStatus nppiThreshold_LT_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds[3]*)

3 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.91 NppStatus nppiThreshold_LT_8u_AC4IR (Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3])

4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.92 NppStatus nppiThreshold_LT_8u_AC4R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3])

4 channel 8-bit unsigned char image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set value is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.93 NppStatus nppiThreshold_LT_8u_C1IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *nThreshold*)

1 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.94 NppStatus nppiThreshold_LT_8u_C1R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *nThreshold*)

1 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.95 NppStatus nppiThreshold_LT_8u_C3IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds[3]*)

3 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.96 NppStatus nppiThreshold_LT_8u_C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3])

3 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nThreshold, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.97 NppStatus nppiThreshold_LTVal_16s_AC4IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3], const Npp16s rValues[3])

4 channel 16-bit signed short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.98 NppStatus nppiThreshold_LTVal_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*,
Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds*[3], const
Npp16s *rValues*[3])**

4 channel 16-bit signed short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.99 NppStatus nppiThreshold_LTVal_16s_C1IR (Npp16s * *pSrcDst*, int *nSrcDstStep*,
NppiSize *oSizeROI*, const Npp16s *nThreshold*, const Npp16s *nValue*)**

1 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.100 NppStatus nppiThreshold_LTVal_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*,
Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *nThreshold*, const
Npp16s *nValue*)**

1 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.101 NppStatus nppiThreshold_LTVal_16s_C3IR (Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds*[3], const Npp16s *rValues*[3])

3 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.102 NppStatus nppiThreshold_LTVal_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds*[3], const Npp16s *rValues*[3])

3 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.103 NppStatus nppiThreshold_LTVal_16u_AC4IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3])

4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.104 NppStatus nppiThreshold_LTVal_16u_AC4R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3])

4 channel 16-bit unsigned short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.105 NppStatus nppiThreshold_LTVal_16u_C1IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u nThreshold, const Npp16u nValue)

1 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.106 NppStatus nppiThreshold_LTVal_16u_C1R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u nThreshold, const Npp16u nValue)

1 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.107 NppStatus nppiThreshold_LTVal_16u_C3IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3])

3 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.108 NppStatus nppiThreshold_LTVal_16u_C3R (const Npp16u * pSrc, int nSrcStep,
Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const
Npp16u rValues[3])**

3 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.109 NppStatus nppiThreshold_LTVal_32f_AC4IR (Npp32f * pSrcDst, int nSrcDstStep,
NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3])**

4 channel 32-bit floating point in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.110 NppStatus nppiThreshold_LTVal_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*,
Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], const
Npp32f *rValues*[3])**

4 channel 32-bit floating point image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.111 NppStatus nppiThreshold_LTVal_32f_C1IR (Npp32f * *pSrcDst*, int *nSrcDstStep*,
NppiSize *oSizeROI*, const Npp32f *nThreshold*, const Npp32f *nValue*)**

1 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.112 NppStatus nppiThreshold_LTVal_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*,
Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *nThreshold*, const
Npp32f *nValue*)**

1 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.113 NppStatus nppiThreshold_LTVal_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3])

3 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
rThresholds The threshold values, one per color channel.
rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.114 NppStatus nppiThreshold_LTVal_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, const Npp32f rThresholds[3], const Npp32f rValues[3])

3 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.115 NppStatus nppiThreshold_LTVal_8u_AC4IR (Npp8u * pSrcDst, int nSrcDstStep,
NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3])**

4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.116 NppStatus nppiThreshold_LTVal_8u_AC4R (const Npp8u * pSrc, int nSrcStep, Npp8u
* pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u
rValues[3])**

4 channel 8-bit unsigned char image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set value is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.117 NppStatus nppiThreshold_LTVal_8u_C1IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u nThreshold, const Npp8u nValue)

1 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.
nSrcDstStep In-Place-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.118 NppStatus nppiThreshold_LTVal_8u_C1R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u nThreshold, const Npp8u nValue)

1 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is less than nThreshold is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nThreshold The threshold value.
nValue The threshold replacement value.

Returns:

Image Data Related Error Codes, ROI Related Error Codes.

7.90.2.119 NppStatus nppiThreshold_LTVal_8u_C3IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3])

3 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.120 NppStatus nppiThreshold_LTVal_8u_C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3])

3 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is less than rThreshold is true, the pixel is set to rValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.121 NppStatus nppiThreshold_LTValGTVal_16s_AC4IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholdsLT[3], const Npp16s rValuesLT[3], const Npp16s rThresholdsGT[3], const Npp16s rValuesGT[3])

4 channel 16-bit signed short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set value is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.122 NppStatus nppiThreshold_LTValGTVal_16s_AC4R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, const Npp16s rThresholdsLT[3], const Npp16s rValuesLT[3], const Npp16s rThresholdsGT[3], const Npp16s rValuesGT[3])

4 channel 16-bit signed short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set value is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.123 NppStatus nppiThreshold_LTValGTVal_16s_C1IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s nThresholdLT, const Npp16s nValueLT, const Npp16s nThresholdGT, const Npp16s nValueGT)

1 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is less than nThresholdLT is true, the pixel is set to nValueLT, else if sourcePixel is greater than nThresholdGT the pixel is set to nValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThresholdLT The thresholdLT value.

nValueLT The thresholdLT replacement value.

nThresholdGT The thresholdGT value.

nValueGT The thresholdGT replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.124 NppStatus nppiThreshold_LTValGTVal_16s_C1R (const Npp16s * pSrc, int nSrcStep, Npp16s * pDst, int nDstStep, NppiSize oSizeROI, const Npp16s nThresholdLT, const Npp16s nValueLT, const Npp16s nThresholdGT, const Npp16s nValueGT)

1 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is less than nThresholdLT is true, the pixel is set to nValueLT, else if sourcePixel is greater than nThresholdGT the pixel is set to nValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThresholdLT The thresholdLT value.

nValueLT The thresholdLT replacement value.

nThresholdGT The thresholdGT value.

nValueGT The thresholdGT replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.125 NppStatus nppiThreshold_LTValGTVal_16s_C3IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholdsLT[3], const Npp16s rValuesLT[3], const Npp16s rThresholdsGT[3], const Npp16s rValuesGT[3])

3 channel 16-bit signed short in place threshold.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.126 NppStatus nppiThreshold_LTValGTVal_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*,
Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholdsLT*[3],
const Npp16s *rValuesLT*[3], const Npp16s *rThresholdsGT*[3], const Npp16s
rValuesGT[3])

3 channel 16-bit signed short threshold.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.127 NppStatus nppiThreshold_LTValGTVal_16u_AC4IR (Npp16u * *pSrcDst*, int
nSrcDstStep, NppiSize *oSizeROI*, const Npp16u *rThresholdsLT*[3], const Npp16u
rValuesLT[3], const Npp16u *rThresholdsGT*[3], const Npp16u *rValuesGT*[3])

4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set value is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.128 NppStatus nppiThreshold_LTValGTVal_16u_AC4R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholdsLT[3], const Npp16u rValuesLT[3], const Npp16u rThresholdsGT[3], const Npp16u rValuesGT[3])

4 channel 16-bit unsigned short image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set value is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.129 NppStatus nppiThreshold_LTValGTVal_16u_C1IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u nThresholdLT, const Npp16u nValueLT, const Npp16u nThresholdGT, const Npp16u nValueGT)

1 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is less than nThresholdLT is true, the pixel is set to nValueLT, else if sourcePixel is greater than nThresholdGT the pixel is set to nValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThresholdLT The thresholdLT value.

nValueLT The thresholdLT replacement value.

nThresholdGT The thresholdGT value.

nValueGT The thresholdGT replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.130 NppStatus nppiThreshold_LTValGTVal_16u_C1R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u nThresholdLT, const Npp16u nValueLT, const Npp16u nThresholdGT, const Npp16u nValueGT)

1 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is less than nThresholdLT is true, the pixel is set to nValueLT, else if sourcePixel is greater than nThresholdGT the pixel is set to nValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThresholdLT The thresholdLT value.

nValueLT The thresholdLT replacement value.

nThresholdGT The thresholdGT value.

nValueGT The thresholdGT replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.131 NppStatus nppiThreshold_LTValGTVal_16u_C3IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u rThresholdsLT[3], const Npp16u rValuesLT[3], const Npp16u rThresholdsGT[3], const Npp16u rValuesGT[3])

3 channel 16-bit unsigned short in place threshold.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.132 NppStatus nppiThreshold_LTValGTVal_16u_C3R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholdsLT[3], const Npp16u rValuesLT[3], const Npp16u rThresholdsGT[3], const Npp16u rValuesGT[3])

3 channel 16-bit unsigned short threshold.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.133 NppStatus nppiThreshold_LTValGTVal_32f_AC4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholdsLT[3], const Npp32f rValuesLT[3], const Npp32f rThresholdsGT[3], const Npp32f rValuesGT[3])

4 channel 32-bit floating point in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set value is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.134 NppStatus nppiThreshold_LTValGTVal_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*,
Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholdsLT*[3],
const Npp32f *rValuesLT*[3], const Npp32f *rThresholdsGT*[3], const Npp32f
rValuesGT[3])**

4 channel 32-bit floating point image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set value is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

**7.90.2.135 NppStatus nppiThreshold_LTValGTVal_32f_C1IR (Npp32f * *pSrcDst*, int *nSrcDstStep*,
NppiSize *oSizeROI*, const Npp32f *nThresholdLT*, const Npp32f *nValueLT*, const
Npp32f *nThresholdGT*, const Npp32f *nValueGT*)**

1 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is less than nThresholdLT is true, the pixel is set to nValueLT, else if sourcePixel is greater than nThresholdGT the pixel is set to nValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThresholdLT The thresholdLT value.

nValueLT The thresholdLT replacement value.

nThresholdGT The thresholdGT value.

nValueGT The thresholdGT replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.136 NppStatus nppiThreshold_LTValGTVal_32f_C1R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, const Npp32f nThresholdLT, const Npp32f nValueLT, const Npp32f nThresholdGT, const Npp32f nValueGT)

1 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is less than nThresholdLT is true, the pixel is set to nValueLT, else if sourcePixel is greater than nThresholdGT the pixel is set to nValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThresholdLT The thresholdLT value.

nValueLT The thresholdLT replacement value.

nThresholdGT The thresholdGT value.

nValueGT The thresholdGT replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.137 NppStatus nppiThreshold_LTValGTVal_32f_C3IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f rThresholdsLT[3], const Npp32f rValuesLT[3], const Npp32f rThresholdsGT[3], const Npp32f rValuesGT[3])

3 channel 32-bit floating point in place threshold.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.138 NppStatus nppiThreshold_LTValGTVal_32f_C3R (const Npp32f * pSrc, int nSrcStep, Npp32f * pDst, int nDstStep, NppiSize oSizeROI, const Npp32f rThresholdsLT[3], const Npp32f rValuesLT[3], const Npp32f rThresholdsGT[3], const Npp32f rValuesGT[3])

3 channel 32-bit floating point threshold.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.139 NppStatus nppiThreshold_LTValGTVal_8u_AC4IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u rThresholdsLT[3], const Npp8u rValuesLT[3], const Npp8u rThresholdsGT[3], const Npp8u rValuesGT[3])

4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set value is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.140 NppStatus nppiThreshold_LTValGTVal_8u_AC4R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholdsLT[3], const Npp8u rValuesLT[3], const Npp8u rThresholdsGT[3], const Npp8u rValuesGT[3])

4 channel 8-bit unsigned char image threshold, not affecting Alpha.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set value is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.141 NppStatus nppiThreshold_LTValGTVal_8u_C1IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u nThresholdLT, const Npp8u nValueLT, const Npp8u nThresholdGT, const Npp8u nValueGT)

1 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is less than nThresholdLT is true, the pixel is set to nValueLT, else if sourcePixel is greater than nThresholdGT the pixel is set to nValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThresholdLT The thresholdLT value.

nValueLT The thresholdLT replacement value.

nThresholdGT The thresholdGT value.

nValueGT The thresholdGT replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.142 NppStatus nppiThreshold_LTValGTVal_8u_C1R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u nThresholdLT, const Npp8u nValueLT, const Npp8u nThresholdGT, const Npp8u nValueGT)

1 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is less than nThresholdLT is true, the pixel is set to nValueLT, else if sourcePixel is greater than nThresholdGT the pixel is set to nValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThresholdLT The thresholdLT value.

nValueLT The thresholdLT replacement value.

nThresholdGT The thresholdGT value.

nValueGT The thresholdGT replacement value.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.143 NppStatus nppiThreshold_LTValGTVal_8u_C3IR (Npp8u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp8u rThresholdsLT[3], const Npp8u rValuesLT[3], const Npp8u rThresholdsGT[3], const Npp8u rValuesGT[3])

3 channel 8-bit unsigned char in place threshold.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrcDst Destination-Image Pointer.

nSrcDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.144 NppStatus nppiThreshold_LTValGTVal_8u_C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholdsLT[3], const Npp8u rValuesLT[3], const Npp8u rThresholdsGT[3], const Npp8u rValuesGT[3])

3 channel 8-bit unsigned char threshold.

If for a comparison operations sourcePixel is less than rThresholdLT is true, the pixel is set to rValueLT, else if sourcePixel is greater than rThresholdGT the pixel is set to rValueGT, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholdsLT The thresholdLT values, one per color channel.

rValuesLT The thresholdLT replacement values, one per color channel.

rThresholdsGT The thresholdGT values, one per channel.

rValuesGT The thresholdGT replacement values, one per color channel.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#).

7.90.2.145 NppStatus nppiThreshold_Val_16s_AC4IR (Npp16s * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16s rThresholds[3], const Npp16s rValues[3], NppCmpOp eComparisonOperation)

4 channel 16-bit signed short in place image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.146 NppStatus nppiThreshold_Val_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds*[3], const Npp16s *rValues*[3], NppCmpOp *eComparisonOperation*)

4 channel 16-bit signed short image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.147 NppStatus nppiThreshold_Val_16s_C1IR (Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16s *nThreshold*, const Npp16s *nValue*, NppCmpOp *eComparisonOperation*)

1 channel 16-bit signed short in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.148 NppStatus nppiThreshold_Val_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *nThreshold*, const Npp16s *nValue*, NppCmpOp *eComparisonOperation*)

1 channel 16-bit signed short threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.149 NppStatus nppiThreshold_Val_16s_C3IR (Npp16s * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds[3]*, const Npp16s *rValues[3]*, NppCmpOp *eComparisonOperation*)

3 channel 16-bit signed short in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are:
NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.150 NppStatus nppiThreshold_Val_16s_C3R (const Npp16s * *pSrc*, int *nSrcStep*, Npp16s * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16s *rThresholds*[3], const Npp16s *rValues*[3], NppCmpOp *eComparisonOperation*)

3 channel 16-bit signed short threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are:
NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.151 NppStatus nppiThreshold_Val_16u_AC4IR (Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds*[3], const Npp16u *rValues*[3], NppCmpOp *eComparisonOperation*)

4 channel 16-bit unsigned short in place image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.152 NppStatus nppiThreshold_Val_16u_AC4R (const Npp16u * pSrc, int nSrcStep, Npp16u * pDst, int nDstStep, NppiSize oSizeROI, const Npp16u rThresholds[3], const Npp16u rValues[3], NppCmpOp eComparisonOperation)

4 channel 16-bit unsigned short image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.153 NppStatus nppiThreshold_Val_16u_C1IR (Npp16u * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp16u nThreshold, const Npp16u nValue, NppCmpOp eComparisonOperation)

1 channel 16-bit unsigned short in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.154 NppStatus nppiThreshold_Val_16u_C1R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u *nThreshold*, const Npp16u *nValue*, NppCmpOp *eComparisonOperation*)

1 channel 16-bit unsigned short threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.155 NppStatus nppiThreshold_Val_16u_C3IR (Npp16u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds[3]*, const Npp16u *rValues[3]*, NppCmpOp *eComparisonOperation*)

3 channel 16-bit unsigned short in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.156 NppStatus nppiThreshold_Val_16u_C3R (const Npp16u **pSrc*, int *nSrcStep*, Npp16u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u *rThresholds*[3], const Npp16u *rValues*[3], NppCmpOp *eComparisonOperation*)

3 channel 16-bit unsigned short threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.157 NppStatus nppiThreshold_Val_32f_AC4IR (Npp32f **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], const Npp32f *rValues*[3], NppCmpOp *eComparisonOperation*)

4 channel 32-bit floating point in place image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.158 NppStatus nppiThreshold_Val_32f_AC4R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], const Npp32f *rValues*[3], NppCmpOp *eComparisonOperation*)

4 channel 32-bit floating point image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.159 NppStatus nppiThreshold_Val_32f_C1IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *nThreshold*, const Npp32f *nValue*, NppCmpOp *eComparisonOperation*)

1 channel 32-bit floating point in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.160 NppStatus nppiThreshold_Val_32f_C1R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *nThreshold*, const Npp32f *nValue*, NppCmpOp *eComparisonOperation*)

1 channel 32-bit floating point threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.161 NppStatus nppiThreshold_Val_32f_C3IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds[3]*, const Npp32f *rValues[3]*, NppCmpOp *eComparisonOperation*)

3 channel 32-bit floating point in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are:
NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.162 NppStatus nppiThreshold_Val_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *rThresholds*[3], const Npp32f *rValues*[3], NppCmpOp *eComparisonOperation*)

3 channel 32-bit floating point threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are:
NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.163 NppStatus nppiThreshold_Val_8u_AC4IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3], const Npp8u *rValues*[3], NppCmpOp *eComparisonOperation*)

4 channel 8-bit unsigned char in place image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.164 NppStatus nppiThreshold_Val_8u_AC4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds*[3], const Npp8u *rValues*[3], NppCmpOp *eComparisonOperation*)

4 channel 8-bit unsigned char image threshold, not affecting Alpha.

If for a comparison operations OP the predicate (sourcePixel.channel OP nThreshold) is true, the channel value is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.165 NppStatus nppiThreshold_Val_8u_C1IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *nThreshold*, const Npp8u *nValue*, NppCmpOp *eComparisonOperation*)

1 channel 8-bit unsigned char in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.166 NppStatus nppiThreshold_Val_8u_C1R (const Npp8u **pSrc*, int *nSrcStep*, Npp8u **pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u *nThreshold*, const Npp8u *nValue*, NppCmpOp *eComparisonOperation*)

1 channel 8-bit unsigned char threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nThreshold The threshold value.

nValue The threshold replacement value.

eComparisonOperation The type of comparison operation to be used. The only valid values are: NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.167 NppStatus nppiThreshold_Val_8u_C3IR (Npp8u **pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp8u *rThresholds[3]*, const Npp8u *rValues[3]*, NppCmpOp *eComparisonOperation*)

3 channel 8-bit unsigned char in place threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are:
NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.90.2.168 NppStatus nppiThreshold_Val_8u_C3R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, const Npp8u rThresholds[3], const Npp8u rValues[3], NppCmpOp eComparisonOperation)

3 channel 8-bit unsigned char threshold.

If for a comparison operations OP the predicate (sourcePixel OP nThreshold) is true, the pixel is set to nValue, otherwise it is set to sourcePixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

rThresholds The threshold values, one per color channel.

rValues The threshold replacement values, one per color channel.

eComparisonOperation The type of comparison operation to be used. The only valid values are:
NPP_CMP_LESS and NPP_CMP_GREATER.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#), or NPP_NOT_SUPPORTED_MODE_ERROR if an invalid comparison operation type is specified.

7.91 Compare Operations

Compare the pixels of two images and create a binary result image.

Functions

- `NppStatus nppiCompare_8u_C1R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
1 channel 8-bit unsigned char image compare.
- `NppStatus nppiCompare_8u_C3R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
3 channel 8-bit unsigned char image compare.
- `NppStatus nppiCompare_8u_C4R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
4 channel 8-bit unsigned char image compare.
- `NppStatus nppiCompare_8u_AC4R (const Npp8u *pSrc1, int nSrc1Step, const Npp8u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
4 channel 8-bit unsigned char image compare, not affecting Alpha.
- `NppStatus nppiCompare_16u_C1R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
1 channel 16-bit unsigned short image compare.
- `NppStatus nppiCompare_16u_C3R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
3 channel 16-bit unsigned short image compare.
- `NppStatus nppiCompare_16u_C4R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
4 channel 16-bit unsigned short image compare.
- `NppStatus nppiCompare_16u_AC4R (const Npp16u *pSrc1, int nSrc1Step, const Npp16u *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
4 channel 16-bit unsigned short image compare, not affecting Alpha.
- `NppStatus nppiCompare_16s_C1R (const Npp16s *pSrc1, int nSrc1Step, const Npp16s *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
1 channel 16-bit signed short image compare.
- `NppStatus nppiCompare_16s_C3R (const Npp16s *pSrc1, int nSrc1Step, const Npp16s *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
3 channel 16-bit signed short image compare.
- `NppStatus nppiCompare_16s_C4R (const Npp16s *pSrc1, int nSrc1Step, const Npp16s *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`
4 channel 16-bit signed short image compare.

- **NppStatus nppiCompare_16s_AC4R** (const **Npp16s** *pSrc1, int nSrc1Step, const **Npp16s** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

4 channel 16-bit signed short image compare, not affecting Alpha.
- **NppStatus nppiCompare_32f_C1R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

1 channel 32-bit floating point image compare.
- **NppStatus nppiCompare_32f_C3R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

3 channel 32-bit floating point image compare.
- **NppStatus nppiCompare_32f_C4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

4 channel 32-bit floating point image compare.
- **NppStatus nppiCompare_32f_AC4R** (const **Npp32f** *pSrc1, int nSrc1Step, const **Npp32f** *pSrc2, int nSrc2Step, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

4 channel 32-bit signed floating point compare, not affecting Alpha.
- **NppStatus nppiCompareC_8u_C1R** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** nConstant, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

1 channel 8-bit unsigned char image compare with constant value.
- **NppStatus nppiCompareC_8u_C3R** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** *pConstants, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

3 channel 8-bit unsigned char image compare with constant value.
- **NppStatus nppiCompareC_8u_C4R** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** *pConstants, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

4 channel 8-bit unsigned char image compare with constant value.
- **NppStatus nppiCompareC_8u_AC4R** (const **Npp8u** *pSrc, int nSrcStep, const **Npp8u** *pConstants, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

4 channel 8-bit unsigned char image compare, not affecting Alpha.
- **NppStatus nppiCompareC_16u_C1R** (const **Npp16u** *pSrc, int nSrcStep, const **Npp16u** nConstant, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

1 channel 16-bit unsigned short image compare with constant value.
- **NppStatus nppiCompareC_16u_C3R** (const **Npp16u** *pSrc, int nSrcStep, const **Npp16u** *pConstants, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

3 channel 16-bit unsigned short image compare with constant value.
- **NppStatus nppiCompareC_16u_C4R** (const **Npp16u** *pSrc, int nSrcStep, const **Npp16u** *pConstants, **Npp8u** *pDst, int nDstStep, **NppSize** oSizeROI, **NppCmpOp** eComparisonOperation)

4 channel 16-bit unsigned short image compare with constant value.

- `NppStatus nppiCompareC_16u_AC4R` (const `Npp16u` *`pSrc`, int `nSrcStep`, const `Npp16u` *`pConstants`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
4 channel 16-bit unsigned short image compare, not affecting Alpha.
- `NppStatus nppiCompareC_16s_C1R` (const `Npp16s` *`pSrc`, int `nSrcStep`, const `Npp16s` `nConstant`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
1 channel 16-bit signed short image compare with constant value.
- `NppStatus nppiCompareC_16s_C3R` (const `Npp16s` *`pSrc`, int `nSrcStep`, const `Npp16s` *`pConstants`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
3 channel 16-bit signed short image compare with constant value.
- `NppStatus nppiCompareC_16s_C4R` (const `Npp16s` *`pSrc`, int `nSrcStep`, const `Npp16s` *`pConstants`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
4 channel 16-bit signed short image compare with constant value.
- `NppStatus nppiCompareC_16s_AC4R` (const `Npp16s` *`pSrc`, int `nSrcStep`, const `Npp16s` *`pConstants`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
4 channel 16-bit signed short image compare, not affecting Alpha.
- `NppStatus nppiCompareC_32f_C1R` (const `Npp32f` *`pSrc`, int `nSrcStep`, const `Npp32f` `nConstant`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
1 channel 32-bit floating point image compare with constant value.
- `NppStatus nppiCompareC_32f_C3R` (const `Npp32f` *`pSrc`, int `nSrcStep`, const `Npp32f` *`pConstants`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
3 channel 32-bit floating point image compare with constant value.
- `NppStatus nppiCompareC_32f_C4R` (const `Npp32f` *`pSrc`, int `nSrcStep`, const `Npp32f` *`pConstants`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
4 channel 32-bit floating point image compare with constant value.
- `NppStatus nppiCompareC_32f_AC4R` (const `Npp32f` *`pSrc`, int `nSrcStep`, const `Npp32f` *`pConstants`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `NppCmpOp` `eComparisonOperation`)
4 channel 32-bit signed floating point compare, not affecting Alpha.
- `NppStatus nppiCompareEqualEps_32f_C1R` (const `Npp32f` *`pSrc1`, int `nSrc1Step`, const `Npp32f` *`pSrc2`, int `nSrc2Step`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `Npp32f` `nEpsilon`)
1 channel 32-bit floating point image compare whether two images are equal within epsilon.
- `NppStatus nppiCompareEqualEps_32f_C3R` (const `Npp32f` *`pSrc1`, int `nSrc1Step`, const `Npp32f` *`pSrc2`, int `nSrc2Step`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `Npp32f` `nEpsilon`)
3 channel 32-bit floating point image compare whether two images are equal within epsilon.
- `NppStatus nppiCompareEqualEps_32f_C4R` (const `Npp32f` *`pSrc1`, int `nSrc1Step`, const `Npp32f` *`pSrc2`, int `nSrc2Step`, `Npp8u` *`pDst`, int `nDstStep`, `NppiSize` `oSizeROI`, `Npp32f` `nEpsilon`)
4 channel 32-bit floating point image compare whether two images are equal within epsilon.

- `NppStatus nppiCompareEqualEps_32f_AC4R (const Npp32f *pSrc1, int nSrc1Step, const Npp32f *pSrc2, int nSrc2Step, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)`
4 channel 32-bit signed floating point compare whether two images are equal within epsilon, not affecting Alpha.
- `NppStatus nppiCompareEqualEpsC_32f_C1R (const Npp32f *pSrc, int nSrcStep, const Npp32f nConstant, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)`
1 channel 32-bit floating point image compare whether image and constant are equal within epsilon.
- `NppStatus nppiCompareEqualEpsC_32f_C3R (const Npp32f *pSrc, int nSrcStep, const Npp32f *pConstants, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)`
3 channel 32-bit floating point image compare whether image and constant are equal within epsilon.
- `NppStatus nppiCompareEqualEpsC_32f_C4R (const Npp32f *pSrc, int nSrcStep, const Npp32f *pConstants, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)`
4 channel 32-bit floating point image compare whether image and constant are equal within epsilon.
- `NppStatus nppiCompareEqualEpsC_32f_AC4R (const Npp32f *pSrc, int nSrcStep, const Npp32f *pConstants, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)`
4 channel 32-bit signed floating point compare whether image and constant are equal within epsilon, not affecting Alpha.

7.91.1 Detailed Description

Compare the pixels of two images and create a binary result image.

In case of multi-channel image types, the condition must be fulfilled for all channels, otherwise the comparison is considered false. The "binary" result image is of type 8u_C1. False is represented by 0, true by NPP_MAX_8U.

7.91.2 Function Documentation

7.91.2.1 `NppStatus nppiCompare_16s_AC4R (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)`

4 channel 16-bit signed short image compare, not affecting Alpha.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

- `pSrc1` Source-Image Pointer.
- `nSrc1Step` Source-Image Line Step.
- `pSrc2` Source-Image Pointer.
- `nSrc2Step` Source-Image Line Step.
- `pDst` Destination-Image Pointer.
- `nDstStep` Destination-Image Line Step.
- `oSizeROI` Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.2 NppStatus nppiCompare_16s_C1R (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

1 channel 16-bit signed short image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.3 NppStatus nppiCompare_16s_C3R (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

3 channel 16-bit signed short image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.4 NppStatus nppiCompare_16s_C4R (const Npp16s * pSrc1, int nSrc1Step, const Npp16s * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 16-bit signed short image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.5 NppStatus nppiCompare_16u_AC4R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 16-bit unsigned short image compare, not affecting Alpha.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.6 NppStatus nppiCompare_16u_C1R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppSize oSizeROI, NppCmpOp eComparisonOperation)

1 channel 16-bit unsigned short image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.7 NppStatus nppiCompare_16u_C3R (const Npp16u * pSrc1, int nSrc1Step, const Npp16u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppSize oSizeROI, NppCmpOp eComparisonOperation)

3 channel 16-bit unsigned short image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.8 NppStatus nppiCompare_16u_C4R (const Npp16u * *pSrc1*, int *nSrc1Step*, const Npp16u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppSize *oSizeROI*, NppCmpOp *eComparisonOperation*)

4 channel 16-bit unsigned short image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.9 NppStatus nppiCompare_32f_AC4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppSize *oSizeROI*, NppCmpOp *eComparisonOperation*)

4 channel 32-bit signed floating point compare, not affecting Alpha.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.10 NppStatus nppiCompare_32f_C1R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppCmpOp *eComparisonOperation*)

1 channel 32-bit floating point image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.11 NppStatus nppiCompare_32f_C3R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppCmpOp *eComparisonOperation*)

3 channel 32-bit floating point image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.12 NppStatus nppiCompare_32f_C4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 32-bit floating point image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.13 NppStatus nppiCompare_8u_AC4R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 8-bit unsigned char image compare, not affecting Alpha.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.14 NppStatus nppiCompare_8u_C1R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

1 channel 8-bit unsigned char image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.15 NppStatus nppiCompare_8u_C3R (const Npp8u * pSrc1, int nSrc1Step, const Npp8u * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

3 channel 8-bit unsigned char image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.16 NppStatus nppiCompare_8u_C4R (const Npp8u * *pSrc1*, int *nSrc1Step*, const Npp8u * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppCmpOp *eComparisonOperation*)

4 channel 8-bit unsigned char image compare.

Compare pSrc1's pixels with corresponding pixels in pSrc2.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.17 NppStatus nppiCompareC_16s_AC4R (const Npp16s * *pSrc*, int *nSrcStep*, const Npp16s * *pConstants*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppCmpOp *eComparisonOperation*)

4 channel 16-bit signed short image compare, not affecting Alpha.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.18 NppStatus nppiCompareC_16s_C1R (const Npp16s * *pSrc*, int *nSrcStep*, const Npp16s *nConstant*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppCmpOp *eComparisonOperation*)

1 channel 16-bit signed short image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
nConstant constant value.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.19 NppStatus nppiCompareC_16s_C3R (const Npp16s * pSrc, int nSrcStep, const Npp16s * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

3 channel 16-bit signed short image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pConstants pointer to a list of constants, one per color channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.20 NppStatus nppiCompareC_16s_C4R (const Npp16s * pSrc, int nSrcStep, const Npp16s * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 16-bit signed short image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pConstants pointer to a list of constants, one per color channel.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.21 NppStatus nppiCompareC_16u_AC4R (const Npp16u * pSrc, int nSrcStep, const Npp16u * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 16-bit unsigned short image compare, not affecting Alpha.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.22 NppStatus nppiCompareC_16u_C1R (const Npp16u * pSrc, int nSrcStep, const Npp16u nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

1 channel 16-bit unsigned short image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nConstant constant value

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.23 NppStatus nppiCompareC_16u_C3R (const Npp16u * pSrc, int nSrcStep, const Npp16u * pConstants, Npp8u * pDst, int nDstStep, NppSize oSizeROI, NppCmpOp eComparisonOperation)

3 channel 16-bit unsigned short image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.24 NppStatus nppiCompareC_16u_C4R (const Npp16u * pSrc, int nSrcStep, const Npp16u * pConstants, Npp8u * pDst, int nDstStep, NppSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 16-bit unsigned short image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.25 NppStatus nppiCompareC_32f_AC4R (const Npp32f * pSrc, int nSrcStep, const Npp32f * pConstants, Npp8u * pDst, int nDstStep, NppSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 32-bit signed floating point compare, not affecting Alpha.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pConstants pointer to a list of constants, one per color channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.26 NppStatus nppiCompareC_32f_C1R (const Npp32f * pSrc, int nSrcStep, const Npp32f * pConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

1 channel 32-bit floating point image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
nConstant constant value
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.27 NppStatus nppiCompareC_32f_C3R (const Npp32f * pSrc, int nSrcStep, const Npp32f * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

3 channel 32-bit floating point image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pConstants pointer to a list of constants, one per color channel.
pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.28 NppStatus nppiCompareC_32f_C4R (const Npp32f * pSrc, int nSrcStep, const Npp32f * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 32-bit floating point image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.29 NppStatus nppiCompareC_8u_AC4R (const Npp8u * pSrc, int nSrcStep, const Npp8u * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 8-bit unsigned char image compare, not affecting Alpha.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.30 NppStatus nppiCompareC_8u_C1R (const Npp8u * pSrc, int nSrcStep, const Npp8u * pConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

1 channel 8-bit unsigned char image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nConstant constant value.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.31 NppStatus nppiCompareC_8u_C3R (const Npp8u * pSrc, int nSrcStep, const Npp8u * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

3 channel 8-bit unsigned char image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constant values, one per color channel..

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.32 NppStatus nppiCompareC_8u_C4R (const Npp8u * pSrc, int nSrcStep, const Npp8u * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, NppCmpOp eComparisonOperation)

4 channel 8-bit unsigned char image compare with constant value.

Compare pSrc's pixels with constant value.

Parameters:

pSrc Source-Image Pointer.
nSrcStep Source-Image Line Step.
pConstants pointer to a list of constants, one per color channel.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
eComparisonOperation Specifies the comparison operation to be used in the pixel comparison.

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.33 NppStatus nppiCompareEqualEps_32f_AC4R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)

4 channel 32-bit signed floating point compare whether two images are equal within epsilon, not affecting Alpha.

Compare pSrc1's pixels with corresponding pixels in pSrc2 to determine whether they are equal with a difference of epsilon.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nEpsilon epsilon tolerance value to compare to per color channel pixel absolute differences

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.34 NppStatus nppiCompareEqualEps_32f_C1R (const Npp32f * pSrc1, int nSrc1Step, const Npp32f * pSrc2, int nSrc2Step, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)

1 channel 32-bit floating point image compare whether two images are equal within epsilon.

Compare pSrc1's pixels with corresponding pixels in pSrc2 to determine whether they are equal with a difference of epsilon.

Parameters:

pSrc1 Source-Image Pointer.

nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nEpsilon epsilon tolerance value to compare to pixel absolute differences

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.35 NppStatus nppiCompareEqualEps_32f_C3R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp32f *nEpsilon*)

3 channel 32-bit floating point image compare whether two images are equal within epsilon.

Compare pSrc1's pixels with corresponding pixels in pSrc2 to determine whether they are equal with a difference of epsilon.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.
pSrc2 Source-Image Pointer.
nSrc2Step Source-Image Line Step.
pDst Destination-Image Pointer.
nDstStep Destination-Image Line Step.
oSizeROI Region-of-Interest (ROI).
nEpsilon epsilon tolerance value to compare to per color channel pixel absolute differences

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.36 NppStatus nppiCompareEqualEps_32f_C4R (const Npp32f * *pSrc1*, int *nSrc1Step*, const Npp32f * *pSrc2*, int *nSrc2Step*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp32f *nEpsilon*)

4 channel 32-bit floating point image compare whether two images are equal within epsilon.

Compare pSrc1's pixels with corresponding pixels in pSrc2 to determine whether they are equal with a difference of epsilon.

Parameters:

pSrc1 Source-Image Pointer.
nSrc1Step Source-Image Line Step.

pSrc2 Source-Image Pointer.

nSrc2Step Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nEpsilon epsilon tolerance value to compare to per color channel pixel absolute differences

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.37 NppStatus nppiCompareEqualEpsC_32f_AC4R (const Npp32f * pSrc, int nSrcStep, const Npp32f * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)

4 channel 32-bit signed floating point compare whether image and constant are equal within epsilon, not affecting Alpha.

Compare pSrc's pixels with constant value to determine whether they are equal within a difference of epsilon.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nEpsilon epsilon tolerance value to compare to per color channel pixel absolute differences

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.38 NppStatus nppiCompareEqualEpsC_32f_C1R (const Npp32f * pSrc, int nSrcStep, const Npp32f nConstant, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)

1 channel 32-bit floating point image compare whether image and constant are equal within epsilon.

Compare pSrc's pixels with constant value to determine whether they are equal within a difference of epsilon.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

nConstant constant value

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nEpsilon epsilon tolerance value to compare to pixel absolute differences

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.39 NppStatus nppiCompareEqualEpsC_32f_C3R (const Npp32f * pSrc, int nSrcStep, const Npp32f * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)

3 channel 32-bit floating point image compare whether image and constant are equal within epsilon.

Compare pSrc's pixels with constant value to determine whether they are equal within a difference of epsilon.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nEpsilon epsilon tolerance value to compare to per color channel pixel absolute differences

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.91.2.40 NppStatus nppiCompareEqualEpsC_32f_C4R (const Npp32f * pSrc, int nSrcStep, const Npp32f * pConstants, Npp8u * pDst, int nDstStep, NppiSize oSizeROI, Npp32f nEpsilon)

4 channel 32-bit floating point image compare whether image and constant are equal within epsilon.

Compare pSrc's pixels with constant value to determine whether they are equal within a difference of epsilon.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pConstants pointer to a list of constants, one per color channel.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

nEpsilon epsilon tolerance value to compare to per color channel pixel absolute differences

Returns:

[Image Data Related Error Codes](#), [ROI Related Error Codes](#)

7.92 NPP Signal Processing

Modules

- [Arithmetic and Logical Operations](#)
- [Conversion Functions](#)
- [Filtering Functions](#)

Functions that provide functionality of generating output signal based on the input signal like signal integral, etc.

- [Initialization](#)
- [Statistical Functions](#)

Functions that provide global signal statistics like: sum, mean, standard deviation, min, max, etc.

- [Memory Management](#)

7.93 Arithmetic and Logical Operations

Modules

- [Arithmetic Operations](#)
- [Logical And Shift Operations](#)

7.94 Arithmetic Operations

Modules

- [AddC](#)

Adds a constant value to each sample of a signal.

- [AddProductC](#)

Adds product of a constant and each sample of a source signal to the each sample of destination signal.

- [MulC](#)

Multiplies each sample of a signal by a constant value.

- [SubC](#)

Subtracts a constant from each sample of a signal.

- [SubCRev](#)

Subtracts each sample of a signal from a constant.

- [DivC](#)

Divides each sample of a signal by a constant.

- [DivCRev](#)

Divides a constant by each sample of a signal.

- [Add](#)

Sample by sample addition of two signals.

- [AddProduct](#)

Adds sample by sample product of two signals to the destination signal.

- [Mul](#)

Sample by sample multiplication the samples of two signals.

- [Sub](#)

Sample by sample subtraction of the samples of two signals.

- [Div](#)

Sample by sample division of the samples of two signals.

- [Div_Round](#)

Sample by sample division of the samples of two signals with rounding.

- [Abs](#)

Absolute value of each sample of a signal.

- [Sqr](#)

Squares each sample of a signal.

- [Sqrt](#)

Square root of each sample of a signal.

- [Cubrt](#)

Cube root of each sample of a signal.

- [Exp](#)

E raised to the power of each sample of a signal.

- [Ln](#)

Natural logarithm of each sample of a signal.

- [10Log10](#)

Ten times the decimal logarithm of each sample of a signal.

- [SumLn](#)

Sums up the natural logarithm of each sample of a signal.

- [Arctan](#)

Inverse tangent of each sample of a signal.

- [Normalize](#)

Normalize each sample of a real or complex signal using offset and division operations.

- [Cauchy, CauchyD, and CauchyDD2](#)

Determine Cauchy robust error function and its first and second derivatives for each sample of a signal.

7.95 AddC

Adds a constant value to each sample of a signal.

Functions

- **NppStatus nppsAddC_8u_ISfs** (`Npp8u` `nValue`, `Npp8u` *`pSrcDst`, int `nLength`, int `nScaleFactor`)
8-bit unsigned char in place signal add constant, scale, then clamp to saturated value
- **NppStatus nppsAddC_8u_Sfs** (const `Npp8u` *`pSrc`, `Npp8u` `nValue`, `Npp8u` *`pDst`, int `nLength`, int `nScaleFactor`)
8-bit unsigned charvector add constant, scale, then clamp to saturated value.
- **NppStatus nppsAddC_16u_ISfs** (`Npp16u` `nValue`, `Npp16u` *`pSrcDst`, int `nLength`, int `nScaleFactor`)
16-bit unsigned short in place signal add constant, scale, then clamp to saturated value.
- **NppStatus nppsAddC_16u_Sfs** (const `Npp16u` *`pSrc`, `Npp16u` `nValue`, `Npp16u` *`pDst`, int `nLength`, int `nScaleFactor`)
16-bit unsigned short vector add constant, scale, then clamp to saturated value.
- **NppStatus nppsAddC_16s_ISfs** (`Npp16s` `nValue`, `Npp16s` *`pSrcDst`, int `nLength`, int `nScaleFactor`)
16-bit signed short in place signal add constant, scale, then clamp to saturated value.
- **NppStatus nppsAddC_16s_Sfs** (const `Npp16s` *`pSrc`, `Npp16s` `nValue`, `Npp16s` *`pDst`, int `nLength`, int `nScaleFactor`)
16-bit signed short signal add constant, scale, then clamp to saturated value.
- **NppStatus nppsAddC_16sc_ISfs** (`Npp16sc` `nValue`, `Npp16sc` *`pSrcDst`, int `nLength`, int `nScaleFactor`)
16-bit integer complex number (16 bit real, 16 bit imaginary) signal add constant, scale, then clamp to saturated value.
- **NppStatus nppsAddC_16sc_Sfs** (const `Npp16sc` *`pSrc`, `Npp16sc` `nValue`, `Npp16sc` *`pDst`, int `nLength`, int `nScaleFactor`)
16-bit integer complex number (16 bit real, 16 bit imaginary) signal add constant, scale, then clamp to saturated value.
- **NppStatus nppsAddC_32s_ISfs** (`Npp32s` `nValue`, `Npp32s` *`pSrcDst`, int `nLength`, int `nScaleFactor`)
32-bit signed integer in place signal add constant and scale.
- **NppStatus nppsAddC_32s_Sfs** (const `Npp32s` *`pSrc`, `Npp32s` `nValue`, `Npp32s` *`pDst`, int `nLength`, int `nScaleFactor`)
32-bit signed integersignal add constant and scale.
- **NppStatus nppsAddC_32sc_ISfs** (`Npp32sc` `nValue`, `Npp32sc` *`pSrcDst`, int `nLength`, int `nScaleFactor`)
32-bit integer complex number (32 bit real, 32 bit imaginary) in place signal add constant and scale.
- **NppStatus nppsAddC_32sc_Sfs** (const `Npp32sc` *`pSrc`, `Npp32sc` `nValue`, `Npp32sc` *`pDst`, int `nLength`, int `nScaleFactor`)

32-bit integer complex number (32 bit real, 32 bit imaginary) signal add constant and scale.

- **NppStatus nppsAddC_32f_I (Npp32f nValue, Npp32f *pSrcDst, int nLength)**
32-bit floating point in place signal add constant.
- **NppStatus nppsAddC_32f (const Npp32f *pSrc, Npp32f nValue, Npp32f *pDst, int nLength)**
32-bit floating point signal add constant.
- **NppStatus nppsAddC_32fc_I (Npp32fc nValue, Npp32fc *pSrcDst, int nLength)**
32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal add constant.
- **NppStatus nppsAddC_32fc (const Npp32fc *pSrc, Npp32fc nValue, Npp32fc *pDst, int nLength)**
32-bit floating point complex number (32 bit real, 32 bit imaginary) signal add constant.
- **NppStatus nppsAddC_64f_I (Npp64f nValue, Npp64f *pSrcDst, int nLength)**
64-bit floating point, in place signal add constant.
- **NppStatus nppsAddC_64f (const Npp64f *pSrc, Npp64f nValue, Npp64f *pDst, int nLength)**
64-bit floating point signal add constant.
- **NppStatus nppsAddC_64fc_I (Npp64fc nValue, Npp64fc *pSrcDst, int nLength)**
64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal add constant.
- **NppStatus nppsAddC_64fc (const Npp64fc *pSrc, Npp64fc nValue, Npp64fc *pDst, int nLength)**
64-bit floating point complex number (64 bit real, 64 bit imaginary) signal add constant.

7.95.1 Detailed Description

Adds a constant value to each sample of a signal.

7.95.2 Function Documentation

7.95.2.1 NppStatus nppsAddC_16s_ISfs (Npp16s nValue, Npp16s *pSrcDst, int nLength, int nScaleFactor)

16-bit signed short in place signal add constant, scale, then clamp to saturated value.

Parameters:

- pSrcDst** In-Place Signal Pointer.
nValue Constant value to be added to each vector element
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.2 NppStatus nppsAddC_16s_Sfs (const Npp16s * pSrc, Npp16s nValue, Npp16s * pDst, int nLength, int nScaleFactor)

16-bit signed short signal add constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.3 NppStatus nppsAddC_16sc_ISfs (Npp16sc nValue, Npp16sc * pSrcDst, int nLength, int nScaleFactor)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal add constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be added to each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.4 NppStatus nppsAddC_16sc_Sfs (const Npp16sc * pSrc, Npp16sc nValue, Npp16sc * pDst, int nLength, int nScaleFactor)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal add constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.5 NppStatus nppsAddC_16u_ISfs (Npp16u *nValue*, Npp16u * *pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short in place signal add constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be added to each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.6 NppStatus nppsAddC_16u_Sfs (const Npp16u * *pSrc*, Npp16u *nValue*, Npp16u * *pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short vector add constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.7 NppStatus nppsAddC_32f (const Npp32f * *pSrc*, Npp32f *nValue*, Npp32f * *pDst*, int *nLength*)

32-bit floating point signal add constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.8 NppStatus nppsAddC_32f_I (Npp32f *nValue*, Npp32f * *pSrcDst*, int *nLength*)

32-bit floating point in place signal add constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be added to each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.9 NppStatus nppsAddC_32fc (const Npp32fc * *pSrc*, Npp32fc *nValue*, Npp32fc * *pDst*, int *nLength*)

32-bit floating point complex number (32 bit real, 32 bit imaginary) signal add constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.10 NppStatus nppsAddC_32fc_I (Npp32fc *nValue*, Npp32fc * *pSrcDst*, int *nLength*)

32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal add constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be added to each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.11 NppStatus nppsAddC_32s_ISfs (Npp32s *nValue*, Npp32s * *pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer in place signal add constant and scale.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be added to each vector element
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.12 NppStatus nppsAddC_32s_Sfs (const Npp32s **pSrc*, Npp32s *nValue*, Npp32s **pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integersignal add constant and scale.

Parameters:

pSrc Source Signal Pointer.
nValue Constant value to be added to each vector element
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.13 NppStatus nppsAddC_32sc_ISfs (Npp32sc *nValue*, Npp32sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit integer complex number (32 bit real, 32 bit imaginary) in place signal add constant and scale.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be added to each vector element
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.14 NppStatus nppsAddC_32sc_Sfs (const Npp32sc * *pSrc*, Npp32sc *nValue*, Npp32sc * *pDst*, int *nLength*, int *nScaleFactor*)

32-bit integer complex number (32 bit real, 32 bit imaginary) signal add constant and scale.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.15 NppStatus nppsAddC_64f (const Npp64f * *pSrc*, Npp64f *nValue*, Npp64f * *pDst*, int *nLength*)

64-bit floating point signal add constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.16 NppStatus nppsAddC_64f_I (Npp64f *nValue*, Npp64f * *pSrcDst*, int *nLength*)

64-bit floating point, in place signal add constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be added to each vector element

nLength Length of the vectors, number of items.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.17 NppStatus nppsAddC_64fc (const Npp64fc **pSrc*, Npp64fc *nValue*, Npp64fc **pDst*, int *nLength*)

64-bit floating point complex number (64 bit real, 64 bit imaginary) signal add constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.18 NppStatus nppsAddC_64fc_I (Npp64fc *nValue*, Npp64fc **pSrcDst*, int *nLength*)

64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal add constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be added to each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.19 NppStatus nppsAddC_8u_ISfs (Npp8u *nValue*, Npp8u **pSrcDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char in place signal add constant, scale, then clamp to saturated value

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be added to each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.95.2.20 NppStatus nppsAddC_8u_Sfs (const Npp8u **pSrc*, Npp8u *nValue*, Npp8u **pDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned charvector add constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added to each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.96 AddProductC

Adds product of a constant and each sample of a source signal to the each sample of destination signal.

Functions

- `NppStatus nppsAddProductC_32f (const Npp32f *pSrc, Npp32f nValue, Npp32f *pDst, int nLength)`

32-bit floating point signal add product of signal times constant to destination signal.

7.96.1 Detailed Description

Adds product of a constant and each sample of a source signal to the each sample of destination signal.

7.96.2 Function Documentation

7.96.2.1 `NppStatus nppsAddProductC_32f (const Npp32f * pSrc, Npp32f nValue, Npp32f * pDst, int nLength)`

32-bit floating point signal add product of signal times constant to destination signal.

Parameters:

`pSrc` Source Signal Pointer.

`nValue` Constant value to be multiplied by each vector element

`pDst` Destination Signal Pointer.

`nLength` Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97 MulC

Multiplies each sample of a signal by a constant value.

Functions

- **NppStatus nppsMulC_8u_ISfs** (`Npp8u nValue, Npp8u *pSrcDst, int nLength, int nScaleFactor`)
8-bit unsigned char in place signal times constant, scale, then clamp to saturated value
- **NppStatus nppsMulC_8u_Sfs** (`const Npp8u *pSrc, Npp8u nValue, Npp8u *pDst, int nLength, int nScaleFactor`)
8-bit unsigned char signal times constant, scale, then clamp to saturated value.
- **NppStatus nppsMulC_16u_ISfs** (`Npp16u nValue, Npp16u *pSrcDst, int nLength, int nScaleFactor`)
16-bit unsigned short in place signal times constant, scale, then clamp to saturated value.
- **NppStatus nppsMulC_16u_Sfs** (`const Npp16u *pSrc, Npp16u nValue, Npp16u *pDst, int nLength, int nScaleFactor`)
16-bit unsigned short signal times constant, scale, then clamp to saturated value.
- **NppStatus nppsMulC_16s_ISfs** (`Npp16s nValue, Npp16s *pSrcDst, int nLength, int nScaleFactor`)
16-bit signed short in place signal times constant, scale, then clamp to saturated value.
- **NppStatus nppsMulC_16s_Sfs** (`const Npp16s *pSrc, Npp16s nValue, Npp16s *pDst, int nLength, int nScaleFactor`)
16-bit signed short signal times constant, scale, then clamp to saturated value.
- **NppStatus nppsMulC_16sc_ISfs** (`Npp16sc nValue, Npp16sc *pSrcDst, int nLength, int nScaleFactor`)
16-bit integer complex number (16 bit real, 16 bit imaginary)signal times constant, scale, then clamp to saturated value.
- **NppStatus nppsMulC_16sc_Sfs** (`const Npp16sc *pSrc, Npp16sc nValue, Npp16sc *pDst, int nLength, int nScaleFactor`)
16-bit integer complex number (16 bit real, 16 bit imaginary)signal times constant, scale, then clamp to saturated value.
- **NppStatus nppsMulC_32s_ISfs** (`Npp32s nValue, Npp32s *pSrcDst, int nLength, int nScaleFactor`)
32-bit signed integer in place signal times constant and scale.
- **NppStatus nppsMulC_32s_Sfs** (`const Npp32s *pSrc, Npp32s nValue, Npp32s *pDst, int nLength, int nScaleFactor`)
32-bit signed integer signal times constant and scale.
- **NppStatus nppsMulC_32sc_ISfs** (`Npp32sc nValue, Npp32sc *pSrcDst, int nLength, int nScaleFactor`)
32-bit integer complex number (32 bit real, 32 bit imaginary) in place signal times constant and scale.
- **NppStatus nppsMulC_32sc_Sfs** (`const Npp32sc *pSrc, Npp32sc nValue, Npp32sc *pDst, int nLength, int nScaleFactor`)

32-bit integer complex number (32 bit real, 32 bit imaginary) signal times constant and scale.

- **NppStatus nppsMulC_32f_I** (*Npp32f nValue, Npp32f *pSrcDst, int nLength*)
32-bit floating point in place signal times constant.
- **NppStatus nppsMulC_32f** (*const Npp32f *pSrc, Npp32f nValue, Npp32f *pDst, int nLength*)
32-bit floating point signal times constant.
- **NppStatus nppsMulC_Low_32f16s** (*const Npp32f *pSrc, Npp32f nValue, Npp16s *pDst, int nLength*)
32-bit floating point signal times constant with output converted to 16-bit signed integer.
- **NppStatus nppsMulC_32f16s_ISfs** (*const Npp32f *pSrc, Npp32f nValue, Npp16s *pDst, int nLength, int nScaleFactor*)
32-bit floating point signal times constant with output converted to 16-bit signed integer with scaling and saturation of output result.
- **NppStatus nppsMulC_32fc_I** (*Npp32fc nValue, Npp32fc *pSrcDst, int nLength*)
32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal times constant.
- **NppStatus nppsMulC_32fc** (*const Npp32fc *pSrc, Npp32fc nValue, Npp32fc *pDst, int nLength*)
32-bit floating point complex number (32 bit real, 32 bit imaginary) signal times constant.
- **NppStatus nppsMulC_64f_I** (*Npp64f nValue, Npp64f *pSrcDst, int nLength*)
64-bit floating point, in place signal times constant.
- **NppStatus nppsMulC_64f** (*const Npp64f *pSrc, Npp64f nValue, Npp64f *pDst, int nLength*)
64-bit floating point signal times constant.
- **NppStatus nppsMulC_64f64s_ISfs** (*Npp64f nValue, Npp64s *pDst, int nLength, int nScaleFactor*)
64-bit floating point signal times constant with in place conversion to 64-bit signed integer and with scaling and saturation of output result.
- **NppStatus nppsMulC_64fc_I** (*Npp64fc nValue, Npp64fc *pSrcDst, int nLength*)
64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal times constant.
- **NppStatus nppsMulC_64fc** (*const Npp64fc *pSrc, Npp64fc nValue, Npp64fc *pDst, int nLength*)
64-bit floating point complex number (64 bit real, 64 bit imaginary) signal times constant.

7.97.1 Detailed Description

Multiplies each sample of a signal by a constant value.

7.97.2 Function Documentation

7.97.2.1 NppStatus nppsMulC_16s_ISfs (*Npp16s nValue, Npp16s *pSrcDst, int nLength, int nScaleFactor*)

16-bit signed short in place signal times constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.2 NppStatus nppsMulC_16s_Sfs (const Npp16s **pSrc*, Npp16s *nValue*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal times constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.3 NppStatus nppsMulC_16sc_ISfs (Npp16sc *nValue*, Npp16sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit integer complex number (16 bit real, 16 bit imaginary)signal times constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.4 NppStatus nppsMulC_16sc_Sfs (const Npp16sc **pSrc*, Npp16sc *nValue*, Npp16sc **pDst*, int *nLength*, int *nScaleFactor*)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal times constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.5 NppStatus nppsMulC_16u_ISfs (Npp16u *nValue*, Npp16u **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short in place signal times constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.6 NppStatus nppsMulC_16u_Sfs (const Npp16u **pSrc*, Npp16u *nValue*, Npp16u **pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal times constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.7 NppStatus nppsMulC_32f (const Npp32f * pSrc, Npp32f nValue, Npp32f * pDst, int nLength)

32-bit floating point signal times constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.8 NppStatus nppsMulC_32f16s_Sfs (const Npp32f * pSrc, Npp32f nValue, Npp16s * pDst, int nLength, int nScaleFactor)

32-bit floating point signal times constant with output converted to 16-bit signed integer with scaling and saturation of output result.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nScaleFactor Integer Result Scaling.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.9 NppStatus nppsMulC_32f_I (Npp32f nValue, Npp32f * pSrcDst, int nLength)

32-bit floating point in place signal times constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.10 NppStatus nppsMulC_32fc (const Npp32fc **pSrc*, Npp32fc *nValue*, Npp32fc **pDst*, int *nLength*)

32-bit floating point complex number (32 bit real, 32 bit imaginary) signal times constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.11 NppStatus nppsMulC_32fc_I (Npp32fc *nValue*, Npp32fc **pSrcDst*, int *nLength*)

32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal times constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.12 NppStatus nppsMulC_32s_ISfs (Npp32s *nValue*, Npp32s **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer in place signal times constant and scale.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.13 NppStatus nppsMulC_32s_Sfs (const Npp32s * pSrc, Npp32s nValue, Npp32s * pDst, int nLength, int nScaleFactor)

32-bit signed integer signal times constant and scale.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.14 NppStatus nppsMulC_32sc_ISfs (Npp32sc nValue, Npp32sc * pSrcDst, int nLength, int nScaleFactor)

32-bit integer complex number (32 bit real, 32 bit imaginary) in place signal times constant and scale.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.15 NppStatus nppsMulC_32sc_Sfs (const Npp32sc * pSrc, Npp32sc nValue, Npp32sc * pDst, int nLength, int nScaleFactor)

32-bit integer complex number (32 bit real, 32 bit imaginary) signal times constant and scale.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.16 NppStatus nppsMulC_64f (const Npp64f * pSrc, Npp64f nValue, Npp64f * pDst, int nLength)

64-bit floating point signal times constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.17 NppStatus nppsMulC_64f64s_ISfs (Npp64f nValue, Npp64s * pDst, int nLength, int nScaleFactor)

64-bit floating point signal times constant with in place conversion to 64-bit signed integer and with scaling and saturation of output result.

Parameters:

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.18 NppStatus nppsMulC_64f_I (Npp64f nValue, Npp64f * pSrcDst, int nLength)

64-bit floating point, in place signal times constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Length of the vectors, number of items.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.19 NppStatus nppsMulC_64fc (const Npp64fc **pSrc*, Npp64fc *nValue*, Npp64fc **pDst*, int *nLength*)

64-bit floating point complex number (64 bit real, 64 bit imaginary) signal times constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.20 NppStatus nppsMulC_64fc_I (Npp64fc *nValue*, Npp64fc **pSrcDst*, int *nLength*)

64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal times constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.21 NppStatus nppsMulC_8u_ISfs (Npp8u *nValue*, Npp8u **pSrcDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char in place signal times constant, scale, then clamp to saturated value

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be multiplied by each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.97.2.22 NppStatus nppsMulC_8u_Sfs (const Npp8u * *pSrc*, Npp8u *nValue*, Npp8u * *pDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char signal times constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.97.2.23 NppStatus nppsMulC_Low_32f16s (const Npp32f * *pSrc*, Npp32f *nValue*, Npp16s * *pDst*, int *nLength*)

32-bit floating point signal times constant with output converted to 16-bit signed integer.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be multiplied by each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.98 SubC

Subtracts a constant from each sample of a signal.

Functions

- **NppStatus nppsSubC_8u_ISfs** (*Npp8u* *nValue*, *Npp8u* **pSrcDst*, int *nLength*, int *nScaleFactor*)
8-bit unsigned char in place signal subtract constant, scale, then clamp to saturated value
- **NppStatus nppsSubC_8u_Sfs** (const *Npp8u* **pSrc*, *Npp8u* *nValue*, *Npp8u* **pDst*, int *nLength*, int *nScaleFactor*)
8-bit unsigned char signal subtract constant, scale, then clamp to saturated value.
- **NppStatus nppsSubC_16u_ISfs** (*Npp16u* *nValue*, *Npp16u* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit unsigned short in place signal subtract constant, scale, then clamp to saturated value.
- **NppStatus nppsSubC_16u_Sfs** (const *Npp16u* **pSrc*, *Npp16u* *nValue*, *Npp16u* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit unsigned short signal subtract constant, scale, then clamp to saturated value.
- **NppStatus nppsSubC_16s_ISfs** (*Npp16s* *nValue*, *Npp16s* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit signed short in place signal subtract constant, scale, then clamp to saturated value.
- **NppStatus nppsSubC_16s_Sfs** (const *Npp16s* **pSrc*, *Npp16s* *nValue*, *Npp16s* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit signed short signal subtract constant, scale, then clamp to saturated value.
- **NppStatus nppsSubC_16sc_ISfs** (*Npp16sc* *nValue*, *Npp16sc* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit integer complex number (16 bit real, 16 bit imaginary) signal subtract constant, scale, then clamp to saturated value.
- **NppStatus nppsSubC_16sc_Sfs** (const *Npp16sc* **pSrc*, *Npp16sc* *nValue*, *Npp16sc* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit integer complex number (16 bit real, 16 bit imaginary) signal subtract constant, scale, then clamp to saturated value.
- **NppStatus nppsSubC_32s_ISfs** (*Npp32s* *nValue*, *Npp32s* **pSrcDst*, int *nLength*, int *nScaleFactor*)
32-bit signed integer in place signal subtract constant and scale.
- **NppStatus nppsSubC_32s_Sfs** (const *Npp32s* **pSrc*, *Npp32s* *nValue*, *Npp32s* **pDst*, int *nLength*, int *nScaleFactor*)
32-bit signed integer signal subtract constant and scale.
- **NppStatus nppsSubC_32sc_ISfs** (*Npp32sc* *nValue*, *Npp32sc* **pSrcDst*, int *nLength*, int *nScaleFactor*)
32-bit integer complex number (32 bit real, 32 bit imaginary) in place signal subtract constant and scale.
- **NppStatus nppsSubC_32sc_Sfs** (const *Npp32sc* **pSrc*, *Npp32sc* *nValue*, *Npp32sc* **pDst*, int *nLength*, int *nScaleFactor*)

32-bit integer complex number (32 bit real, 32 bit imaginary) signal subtract constant and scale.

- [NppStatus nppsSubC_32f_I \(Npp32f nValue, Npp32f *pSrcDst, int nLength\)](#)
32-bit floating point in place signal subtract constant.
- [NppStatus nppsSubC_32f \(const Npp32f *pSrc, Npp32f nValue, Npp32f *pDst, int nLength\)](#)
32-bit floating point signal subtract constant.
- [NppStatus nppsSubC_32fc_I \(Npp32fc nValue, Npp32fc *pSrcDst, int nLength\)](#)
32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal subtract constant.
- [NppStatus nppsSubC_32fc \(const Npp32fc *pSrc, Npp32fc nValue, Npp32fc *pDst, int nLength\)](#)
32-bit floating point complex number (32 bit real, 32 bit imaginary) signal subtract constant.
- [NppStatus nppsSubC_64f_I \(Npp64f nValue, Npp64f *pSrcDst, int nLength\)](#)
64-bit floating point, in place signal subtract constant.
- [NppStatus nppsSubC_64f \(const Npp64f *pSrc, Npp64f nValue, Npp64f *pDst, int nLength\)](#)
64-bit floating point signal subtract constant.
- [NppStatus nppsSubC_64fc_I \(Npp64fc nValue, Npp64fc *pSrcDst, int nLength\)](#)
64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal subtract constant.
- [NppStatus nppsSubC_64fc \(const Npp64fc *pSrc, Npp64fc nValue, Npp64fc *pDst, int nLength\)](#)
64-bit floating point complex number (64 bit real, 64 bit imaginary) signal subtract constant.

7.98.1 Detailed Description

Subtracts a constant from each sample of a signal.

7.98.2 Function Documentation

7.98.2.1 NppStatus nppsSubC_16s_ISfs (Npp16s *nValue*, Npp16s * *pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short in place signal subtract constant, scale, then clamp to saturated value.

Parameters:

- pSrcDst*** In-Place Signal Pointer.
nValue Constant value to be subtracted from each vector element
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.2 NppStatus nppsSubC_16s_Sfs (const Npp16s **pSrc*, Npp16s *nValue*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.3 NppStatus nppsSubC_16sc_ISfs (Npp16sc *nValue*, Npp16sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be subtracted from each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.4 NppStatus nppsSubC_16sc_Sfs (const Npp16sc **pSrc*, Npp16sc *nValue*, Npp16sc **pDst*, int *nLength*, int *nScaleFactor*)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.5 NppStatus nppsSubC_16u_ISfs (Npp16u *nValue*, Npp16u * *pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short in place signal subtract constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be subtracted from each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.6 NppStatus nppsSubC_16u_Sfs (const Npp16u * *pSrc*, Npp16u *nValue*, Npp16u * *pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.7 NppStatus nppsSubC_32f (const Npp32f * *pSrc*, Npp32f *nValue*, Npp32f * *pDst*, int *nLength*)

32-bit floating point signal subtract constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.8 NppStatus nppsSubC_32f_I (Npp32f *nValue*, Npp32f * *pSrcDst*, int *nLength*)

32-bit floating point in place signal subtract constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be subtracted from each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.9 NppStatus nppsSubC_32fc (const Npp32fc * *pSrc*, Npp32fc *nValue*, Npp32fc * *pDst*, int *nLength*)

32-bit floating point complex number (32 bit real, 32 bit imaginary) signal subtract constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.10 NppStatus nppsSubC_32fc_I (Npp32fc *nValue*, Npp32fc * *pSrcDst*, int *nLength*)

32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal subtract constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be subtracted from each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.11 NppStatus nppsSubC_32s_ISfs (Npp32s *nValue*, Npp32s * *pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer in place signal subtract constant and scale.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be subtracted from each vector element
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.12 NppStatus nppsSubC_32s_Sfs (const Npp32s * *pSrc*, Npp32s *nValue*, Npp32s * *pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer signal subtract constant and scale.

Parameters:

pSrc Source Signal Pointer.
nValue Constant value to be subtracted from each vector element
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.13 NppStatus nppsSubC_32sc_ISfs (Npp32sc *nValue*, Npp32sc * *pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit integer complex number (32 bit real, 32 bit imaginary) in place signal subtract constant and scale.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be subtracted from each vector element
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.14 NppStatus nppsSubC_32sc_Sfs (const Npp32sc * *pSrc*, Npp32sc *nValue*, Npp32sc * *pDst*, int *nLength*, int *nScaleFactor*)

32-bit integer complex number (32 bit real, 32 bit imaginary) signal subtract constant and scale.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.15 NppStatus nppsSubC_64f (const Npp64f * *pSrc*, Npp64f *nValue*, Npp64f * *pDst*, int *nLength*)

64-bit floating point signal subtract constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.16 NppStatus nppsSubC_64f_I (Npp64f *nValue*, Npp64f * *pSrcDst*, int *nLength*)

64-bit floating point, in place signal subtract constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be subtracted from each vector element

nLength Length of the vectors, number of items.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.17 NppStatus nppsSubC_64fc (const Npp64fc * pSrc, Npp64fc nValue, Npp64fc * pDst, int nLength)

64-bit floating point complex number (64 bit real, 64 bit imaginary) signal subtract constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.18 NppStatus nppsSubC_64fc_I (Npp64fc nValue, Npp64fc * pSrcDst, int nLength)

64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal subtract constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be subtracted from each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.19 NppStatus nppsSubC_8u_ISfs (Npp8u nValue, Npp8u * pSrcDst, int nLength, int nScaleFactor)

8-bit unsigned char in place signal subtract constant, scale, then clamp to saturated value

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be subtracted from each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.98.2.20 NppStatus nppsSubC_8u_Sfs (const Npp8u **pSrc*, Npp8u *nValue*, Npp8u **pDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char signal subtract constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be subtracted from each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99 SubCRev

Subtracts each sample of a signal from a constant.

Functions

- **NppStatus nppsSubCRev_8u_ISfs** (*Npp8u* *nValue*, *Npp8u* **pSrcDst*, int *nLength*, int *nScaleFactor*)
8-bit unsigned char in place signal subtract from constant, scale, then clamp to saturated value
- **NppStatus nppsSubCRev_8u_Sfs** (const *Npp8u* **pSrc*, *Npp8u* *nValue*, *Npp8u* **pDst*, int *nLength*, int *nScaleFactor*)
8-bit unsigned char signal subtract from constant, scale, then clamp to saturated value.
- **NppStatus nppsSubCRev_16u_ISfs** (*Npp16u* *nValue*, *Npp16u* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit unsigned short in place signal subtract from constant, scale, then clamp to saturated value.
- **NppStatus nppsSubCRev_16u_Sfs** (const *Npp16u* **pSrc*, *Npp16u* *nValue*, *Npp16u* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit unsigned short signal subtract from constant, scale, then clamp to saturated value.
- **NppStatus nppsSubCRev_16s_ISfs** (*Npp16s* *nValue*, *Npp16s* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit signed short in place signal subtract from constant, scale, then clamp to saturated value.
- **NppStatus nppsSubCRev_16s_Sfs** (const *Npp16s* **pSrc*, *Npp16s* *nValue*, *Npp16s* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit signed short signal subtract from constant, scale, then clamp to saturated value.
- **NppStatus nppsSubCRev_16sc_ISfs** (*Npp16sc* *nValue*, *Npp16sc* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit integer complex number (16 bit real, 16 bit imaginary) signal subtract from constant, scale, then clamp to saturated value.
- **NppStatus nppsSubCRev_16sc_Sfs** (const *Npp16sc* **pSrc*, *Npp16sc* *nValue*, *Npp16sc* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit integer complex number (16 bit real, 16 bit imaginary) signal subtract from constant, scale, then clamp to saturated value.
- **NppStatus nppsSubCRev_32s_ISfs** (*Npp32s* *nValue*, *Npp32s* **pSrcDst*, int *nLength*, int *nScaleFactor*)
32-bit signed integer in place signal subtract from constant and scale.
- **NppStatus nppsSubCRev_32s_Sfs** (const *Npp32s* **pSrc*, *Npp32s* *nValue*, *Npp32s* **pDst*, int *nLength*, int *nScaleFactor*)
32-bit signed integer signal subtract from constant and scale.
- **NppStatus nppsSubCRev_32sc_ISfs** (*Npp32sc* *nValue*, *Npp32sc* **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit integer complex number (32 bit real, 32 bit imaginary) in place signal subtract from constant and scale.

- **NppStatus nppsSubCRev_32sc_Sfs** (const **Npp32sc** *pSrc, **Npp32sc** nValue, **Npp32sc** *pDst, int nLength, int nScaleFactor)

32-bit integer complex number (32 bit real, 32 bit imaginary) signal subtract from constant and scale.
- **NppStatus nppsSubCRev_32f_I** (**Npp32f** nValue, **Npp32f** *pSrcDst, int nLength)

32-bit floating point in place signal subtract from constant.
- **NppStatus nppsSubCRev_32f** (const **Npp32f** *pSrc, **Npp32f** nValue, **Npp32f** *pDst, int nLength)

32-bit floating point signal subtract from constant.
- **NppStatus nppsSubCRev_32fc_I** (**Npp32fc** nValue, **Npp32fc** *pSrcDst, int nLength)

32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal subtract from constant.
- **NppStatus nppsSubCRev_32fc** (const **Npp32fc** *pSrc, **Npp32fc** nValue, **Npp32fc** *pDst, int nLength)

32-bit floating point complex number (32 bit real, 32 bit imaginary) signal subtract from constant.
- **NppStatus nppsSubCRev_64f_I** (**Npp64f** nValue, **Npp64f** *pSrcDst, int nLength)

64-bit floating point, in place signal subtract from constant.
- **NppStatus nppsSubCRev_64f** (const **Npp64f** *pSrc, **Npp64f** nValue, **Npp64f** *pDst, int nLength)

64-bit floating point signal subtract from constant.
- **NppStatus nppsSubCRev_64fc_I** (**Npp64fc** nValue, **Npp64fc** *pSrcDst, int nLength)

64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal subtract from constant.
- **NppStatus nppsSubCRev_64fc** (const **Npp64fc** *pSrc, **Npp64fc** nValue, **Npp64fc** *pDst, int nLength)

64-bit floating point complex number (64 bit real, 64 bit imaginary) signal subtract from constant.

7.99.1 Detailed Description

Subtracts each sample of a signal from a constant.

7.99.2 Function Documentation

7.99.2.1 NppStatus nppsSubCRev_16s_ISfs (Npp16s nValue, Npp16s *pSrcDst, int nLength, int nScaleFactor)

16-bit signed short in place signal subtract from constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.2 NppStatus nppsSubCRev_16s_Sfs (const Npp16s **pSrc*, Npp16s *nValue*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal subtract from constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.3 NppStatus nppsSubCRev_16sc_ISfs (Npp16sc *nValue*, Npp16sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal subtract from constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.4 NppStatus nppsSubCRev_16sc_Sfs (const Npp16sc **pSrc*, Npp16sc *nValue*, Npp16sc **pDst*, int *nLength*, int *nScaleFactor*)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal subtract from constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.5 NppStatus nppsSubCRev_16u_ISfs (Npp16u *nValue*, Npp16u **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short in place signal subtract from constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value each vector element is to be subtracted from
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.6 NppStatus nppsSubCRev_16u_Sfs (const Npp16u **pSrc*, Npp16u *nValue*, Npp16u **pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal subtract from constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
nValue Constant value each vector element is to be subtracted from
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.7 NppStatus nppsSubCRev_32f (const Npp32f **pSrc*, Npp32f *nValue*, Npp32f **pDst*, int *nLength*)

32-bit floating point signal subtract from constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.8 NppStatus nppsSubCRev_32f_I (Npp32f *nValue*, Npp32f * *pSrcDst*, int *nLength*)

32-bit floating point in place signal subtract from constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.9 NppStatus nppsSubCRev_32fc (const Npp32fc * *pSrc*, Npp32fc *nValue*, Npp32fc * *pDst*, int *nLength*)

32-bit floating point complex number (32 bit real, 32 bit imaginary) signal subtract from constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.10 NppStatus nppsSubCRev_32fc_I (Npp32fc *nValue*, Npp32fc * *pSrcDst*, int *nLength*)

32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal subtract from constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.11 NppStatus nppsSubCRev_32s_ISfs (Npp32s *nValue*, Npp32s **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer in place signal subtract from constant and scale.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.12 NppStatus nppsSubCRev_32s_Sfs (const Npp32s **pSrc*, Npp32s *nValue*, Npp32s **pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integersignal subtract from constant and scale.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.13 NppStatus nppsSubCRev_32sc_ISfs (Npp32sc *nValue*, Npp32sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit integer complex number (32 bit real, 32 bit imaginary) in place signal subtract from constant and scale.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.14 NppStatus nppsSubCRev_32sc_Sfs (const Npp32sc **pSrc*, Npp32sc *nValue*, Npp32sc **pDst*, int *nLength*, int *nScaleFactor*)

32-bit integer complex number (32 bit real, 32 bit imaginary) signal subtract from constant and scale.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.15 NppStatus nppsSubCRev_64f (const Npp64f **pSrc*, Npp64f *nValue*, Npp64f **pDst*, int *nLength*)

64-bit floating point signal subtract from constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.16 NppStatus nppsSubCRev_64f_I (Npp64f *nValue*, Npp64f **pSrcDst*, int *nLength*)

64-bit floating point, in place signal subtract from constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Length of the vectors, number of items.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.17 NppStatus nppsSubCRev_64fc (const Npp64fc **pSrc*, Npp64fc *nValue*, Npp64fc **pDst*, int *nLength*)

64-bit floating point complex number (64 bit real, 64 bit imaginary) signal subtract from constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.18 NppStatus nppsSubCRev_64fc_I (Npp64fc *nValue*, Npp64fc **pSrcDst*, int *nLength*)

64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal subtract from constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.19 NppStatus nppsSubCRev_8u_ISfs (Npp8u *nValue*, Npp8u **pSrcDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char in place signal subtract from constant, scale, then clamp to saturated value

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value each vector element is to be subtracted from

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.99.2.20 NppStatus nppsSubCRev_8u_Sfs (const Npp8u * *pSrc*, Npp8u *nValue*, Npp8u * *pDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char signal subtract from constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value each vector element is to be subtracted from

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.100 DivC

Divides each sample of a signal by a constant.

Functions

- **NppStatus nppsDivC_8u_ISfs** (*Npp8u* *nValue*, *Npp8u* **pSrcDst*, int *nLength*, int *nScaleFactor*)
8-bit unsigned char in place signal divided by constant, scale, then clamp to saturated value
- **NppStatus nppsDivC_8u_Sfs** (const *Npp8u* **pSrc*, *Npp8u* *nValue*, *Npp8u* **pDst*, int *nLength*, int *nScaleFactor*)
8-bit unsigned char signal divided by constant, scale, then clamp to saturated value.
- **NppStatus nppsDivC_16u_ISfs** (*Npp16u* *nValue*, *Npp16u* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit unsigned short in place signal divided by constant, scale, then clamp to saturated value.
- **NppStatus nppsDivC_16u_Sfs** (const *Npp16u* **pSrc*, *Npp16u* *nValue*, *Npp16u* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit unsigned short signal divided by constant, scale, then clamp to saturated value.
- **NppStatus nppsDivC_16s_ISfs** (*Npp16s* *nValue*, *Npp16s* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit signed short in place signal divided by constant, scale, then clamp to saturated value.
- **NppStatus nppsDivC_16s_Sfs** (const *Npp16s* **pSrc*, *Npp16s* *nValue*, *Npp16s* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit signed short signal divided by constant, scale, then clamp to saturated value.
- **NppStatus nppsDivC_16sc_ISfs** (*Npp16sc* *nValue*, *Npp16sc* **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit integer complex number (16 bit real, 16 bit imaginary) signal divided by constant, scale, then clamp to saturated value.
- **NppStatus nppsDivC_16sc_Sfs** (const *Npp16sc* **pSrc*, *Npp16sc* *nValue*, *Npp16sc* **pDst*, int *nLength*, int *nScaleFactor*)
16-bit integer complex number (16 bit real, 16 bit imaginary) signal divided by constant, scale, then clamp to saturated value.
- **NppStatus nppsDivC_32f_I** (*Npp32f* *nValue*, *Npp32f* **pSrcDst*, int *nLength*)
32-bit floating point in place signal divided by constant.
- **NppStatus nppsDivC_32f** (const *Npp32f* **pSrc*, *Npp32f* *nValue*, *Npp32f* **pDst*, int *nLength*)
32-bit floating point signal divided by constant.
- **NppStatus nppsDivC_32fc_I** (*Npp32fc* *nValue*, *Npp32fc* **pSrcDst*, int *nLength*)
32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal divided by constant.
- **NppStatus nppsDivC_32fc** (const *Npp32fc* **pSrc*, *Npp32fc* *nValue*, *Npp32fc* **pDst*, int *nLength*)
32-bit floating point complex number (32 bit real, 32 bit imaginary) signal divided by constant.
- **NppStatus nppsDivC_64f_I** (*Npp64f* *nValue*, *Npp64f* **pSrcDst*, int *nLength*)

64-bit floating point in place signal divided by constant.

- **NppStatus nppsDivC_64f** (const **Npp64f** ***pSrc**, **Npp64f** **nValue**, **Npp64f** ***pDst**, int **nLength**)
64-bit floating point signal divided by constant.
- **NppStatus nppsDivC_64fc_I** (**Npp64fc** **nValue**, **Npp64fc** ***pSrcDst**, int **nLength**)
64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal divided by constant.
- **NppStatus nppsDivC_64fc** (const **Npp64fc** ***pSrc**, **Npp64fc** **nValue**, **Npp64fc** ***pDst**, int **nLength**)
64-bit floating point complex number (64 bit real, 64 bit imaginary) signal divided by constant.

7.100.1 Detailed Description

Divides each sample of a signal by a constant.

7.100.2 Function Documentation

7.100.2.1 NppStatus nppsDivC_16s_ISfs (Npp16s **nValue**, Npp16s ***pSrcDst**, int **nLength**, int **nScaleFactor**)

16-bit signed short in place signal divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be divided into each vector element
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.2 NppStatus nppsDivC_16s_Sfs (const Npp16s ***pSrc**, Npp16s **nValue**, Npp16s ***pDst**, int **nLength**, int **nScaleFactor**)

16-bit signed short signal divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
nValue Constant value to be divided into each vector element
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.3 NppStatus nppsDivC_16sc_ISfs (Npp16sc *nValue*, Npp16sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be divided into each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.4 NppStatus nppsDivC_16sc_Sfs (const Npp16sc **pSrc*, Npp16sc *nValue*, Npp16sc **pDst*, int *nLength*, int *nScaleFactor*)

16-bit integer complex number (16 bit real, 16 bit imaginary) signal divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be divided into each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.5 NppStatus nppsDivC_16u_ISfs (Npp16u *nValue*, Npp16u **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short in place signal divided by constant, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be divided into each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.6 NppStatus nppsDivC_16u_Sfs (const Npp16u **pSrc*, Npp16u *nValue*, Npp16u **pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be divided into each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.7 NppStatus nppsDivC_32f (const Npp32f **pSrc*, Npp32f *nValue*, Npp32f **pDst*, int *nLength*)

32-bit floating point signal divided by constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be divided into each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.8 NppStatus nppsDivC_32f_I (Npp32f *nValue*, Npp32f **pSrcDst*, int *nLength*)

32-bit floating point in place signal divided by constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be divided into each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.9 NppStatus nppsDivC_32fc (const Npp32fc * pSrc, Npp32fc nValue, Npp32fc * pDst, int nLength)

32-bit floating point complex number (32 bit real, 32 bit imaginary) signal divided by constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be divided into each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.10 NppStatus nppsDivC_32fc_I (Npp32fc nValue, Npp32fc * pSrcDst, int nLength)

32-bit floating point complex number (32 bit real, 32 bit imaginary) in place signal divided by constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be divided into each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.11 NppStatus nppsDivC_64f (const Npp64f * pSrc, Npp64f nValue, Npp64f * pDst, int nLength)

64-bit floating point signal divided by constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be divided into each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.12 NppStatus nppsDivC_64f_I (Npp64f *nValue*, Npp64f * *pSrcDst*, int *nLength*)

64-bit floating point in place signal divided by constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be divided into each vector element

nLength Length of the vectors, number of items.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.13 NppStatus nppsDivC_64fc (const Npp64fc * *pSrc*, Npp64fc *nValue*, Npp64fc * *pDst*, int *nLength*)

64-bit floating point complex number (64 bit real, 64 bit imaginary) signal divided by constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be divided into each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.14 NppStatus nppsDivC_64fc_I (Npp64fc *nValue*, Npp64fc * *pSrcDst*, int *nLength*)

64-bit floating point complex number (64 bit real, 64 bit imaginary) in place signal divided by constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be divided into each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.15 NppStatus nppsDivC_8u_ISfs (Npp8u *nValue*, Npp8u * *pSrcDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char in place signal divided by constant, scale, then clamp to saturated value

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be divided into each vector element

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.100.2.16 NppStatus nppsDivC_8u_Sfs (const Npp8u **pSrc*, Npp8u *nValue*, Npp8u **pDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char signal divided by constant, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be divided into each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.101 DivCRev

Divides a constant by each sample of a signal.

Functions

- **NppStatus nppsDivCRev_16u_I (Npp16u nValue, Npp16u *pSrcDst, int nLength)**
16-bit unsigned short in place constant divided by signal, then clamp to saturated value.
- **NppStatus nppsDivCRev_16u (const Npp16u *pSrc, Npp16u nValue, Npp16u *pDst, int nLength)**
16-bit unsigned short signal divided by constant, then clamp to saturated value.
- **NppStatus nppsDivCRev_32f_I (Npp32f nValue, Npp32f *pSrcDst, int nLength)**
32-bit floating point in place constant divided by signal.
- **NppStatus nppsDivCRev_32f (const Npp32f *pSrc, Npp32f nValue, Npp32f *pDst, int nLength)**
32-bit floating point constant divided by signal.

7.101.1 Detailed Description

Divides a constant by each sample of a signal.

7.101.2 Function Documentation

7.101.2.1 NppStatus nppsDivCRev_16u (const Npp16u *pSrc, Npp16u nValue, Npp16u *pDst, int nLength)

16-bit unsigned short signal divided by constant, then clamp to saturated value.

Parameters:

- pSrc** Source Signal Pointer.
nValue Constant value to be divided by each vector element
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.101.2.2 NppStatus nppsDivCRev_16u_I (Npp16u nValue, Npp16u *pSrcDst, int nLength)

16-bit unsigned short in place constant divided by signal, then clamp to saturated value.

Parameters:

- pSrcDst** In-Place Signal Pointer.

nValue Constant value to be divided by each vector element
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.101.2.3 NppStatus nppsDivCRev_32f (const Npp32f * pSrc, Npp32f nValue, Npp32f * pDst, int nLength)

32-bit floating point constant divided by signal.

Parameters:

pSrc Source Signal Pointer.
nValue Constant value to be divided by each vector element
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.101.2.4 NppStatus nppsDivCRev_32f_I (Npp32f nValue, Npp32f * pSrcDst, int nLength)

32-bit floating point in place constant divided by signal.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be divided by each vector element
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102 Add

Sample by sample addition of two signals.

Functions

- **NppStatus nppsAdd_16s** (const Npp16s *pSrc1, const Npp16s *pSrc2, Npp16s *pDst, int nLength)

16-bit signed short signal add signal, then clamp to saturated value.
- **NppStatus nppsAdd_16u** (const Npp16u *pSrc1, const Npp16u *pSrc2, Npp16u *pDst, int nLength)

16-bit unsigned short signal add signal, then clamp to saturated value.
- **NppStatus nppsAdd_32u** (const Npp32u *pSrc1, const Npp32u *pSrc2, Npp32u *pDst, int nLength)

32-bit unsigned int signal add signal, then clamp to saturated value.
- **NppStatus nppsAdd_32f** (const Npp32f *pSrc1, const Npp32f *pSrc2, Npp32f *pDst, int nLength)

32-bit floating point signal add signal, then clamp to saturated value.
- **NppStatus nppsAdd_64f** (const Npp64f *pSrc1, const Npp64f *pSrc2, Npp64f *pDst, int nLength)

64-bit floating point signal add signal, then clamp to saturated value.
- **NppStatus nppsAdd_32fc** (const Npp32fc *pSrc1, const Npp32fc *pSrc2, Npp32fc *pDst, int nLength)

32-bit complex floating point signal add signal, then clamp to saturated value.
- **NppStatus nppsAdd_64fc** (const Npp64fc *pSrc1, const Npp64fc *pSrc2, Npp64fc *pDst, int nLength)

64-bit complex floating point signal add signal, then clamp to saturated value.
- **NppStatus nppsAdd_8u16u** (const Npp8u *pSrc1, const Npp8u *pSrc2, Npp16u *pDst, int nLength)

8-bit unsigned char signal add signal with 16-bit unsigned result, then clamp to saturated value.
- **NppStatus nppsAdd_16s32f** (const Npp16s *pSrc1, const Npp16s *pSrc2, Npp32f *pDst, int nLength)

16-bit signed short signal add signal with 32-bit floating point result, then clamp to saturated value.
- **NppStatus nppsAdd_8u_Sfs** (const Npp8u *pSrc1, const Npp8u *pSrc2, Npp8u *pDst, int nLength, int nScaleFactor)

8-bit unsigned char add signal, scale, then clamp to saturated value.
- **NppStatus nppsAdd_16u_Sfs** (const Npp16u *pSrc1, const Npp16u *pSrc2, Npp16u *pDst, int nLength, int nScaleFactor)

16-bit unsigned short add signal, scale, then clamp to saturated value.
- **NppStatus nppsAdd_16s_Sfs** (const Npp16s *pSrc1, const Npp16s *pSrc2, Npp16s *pDst, int nLength, int nScaleFactor)

16-bit signed short add signal, scale, then clamp to saturated value.

- **NppStatus nppsAdd_32s_Sfs** (const **Npp32s** *pSrc1, const **Npp32s** *pSrc2, **Npp32s** *pDst, int nLength, int nScaleFactor)

32-bit signed integer add signal, scale, then clamp to saturated value.

- **NppStatus nppsAdd_64s_Sfs** (const **Npp64s** *pSrc1, const **Npp64s** *pSrc2, **Npp64s** *pDst, int nLength, int nScaleFactor)

64-bit signed integer add signal, scale, then clamp to saturated value.

- **NppStatus nppsAdd_16sc_Sfs** (const **Npp16sc** *pSrc1, const **Npp16sc** *pSrc2, **Npp16sc** *pDst, int nLength, int nScaleFactor)

16-bit signed complex short add signal, scale, then clamp to saturated value.

- **NppStatus nppsAdd_32sc_Sfs** (const **Npp32sc** *pSrc1, const **Npp32sc** *pSrc2, **Npp32sc** *pDst, int nLength, int nScaleFactor)

32-bit signed complex integer add signal, scale, then clamp to saturated value.

- **NppStatus nppsAdd_16s_I** (const **Npp16s** *pSrc, **Npp16s** *pSrcDst, int nLength)

16-bit signed short in place signal add signal, then clamp to saturated value.

- **NppStatus nppsAdd_32f_I** (const **Npp32f** *pSrc, **Npp32f** *pSrcDst, int nLength)

32-bit floating point in place signal add signal, then clamp to saturated value.

- **NppStatus nppsAdd_64f_I** (const **Npp64f** *pSrc, **Npp64f** *pSrcDst, int nLength)

64-bit floating point in place signal add signal, then clamp to saturated value.

- **NppStatus nppsAdd_32fc_I** (const **Npp32fc** *pSrc, **Npp32fc** *pSrcDst, int nLength)

32-bit complex floating point in place signal add signal, then clamp to saturated value.

- **NppStatus nppsAdd_64fc_I** (const **Npp64fc** *pSrc, **Npp64fc** *pSrcDst, int nLength)

64-bit complex floating point in place signal add signal, then clamp to saturated value.

- **NppStatus nppsAdd_16s32s_I** (const **Npp16s** *pSrc, **Npp32s** *pSrcDst, int nLength)

16/32-bit signed short in place signal add signal with 32-bit signed integer results, then clamp to saturated value.

- **NppStatus nppsAdd_8u_ISfs** (const **Npp8u** *pSrc, **Npp8u** *pSrcDst, int nLength, int nScaleFactor)

8-bit unsigned char in place signal add signal, with scaling, then clamp to saturated value.

- **NppStatus nppsAdd_16u_ISfs** (const **Npp16u** *pSrc, **Npp16u** *pSrcDst, int nLength, int nScaleFactor)

16-bit unsigned short in place signal add signal, with scaling, then clamp to saturated value.

- **NppStatus nppsAdd_16s_ISfs** (const **Npp16s** *pSrc, **Npp16s** *pSrcDst, int nLength, int nScaleFactor)

16-bit signed short in place signal add signal, with scaling, then clamp to saturated value.

- **NppStatus nppsAdd_32s_ISfs** (const **Npp32s** *pSrc, **Npp32s** *pSrcDst, int nLength, int nScaleFactor)

32-bit signed integer in place signal add signal, with scaling, then clamp to saturated value.

- **NppStatus nppsAdd_16sc_ISfs** (const **Npp16sc** **pSrc*, **Npp16sc** **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit complex signed short in place signal add signal, with scaling, then clamp to saturated value.

- **NppStatus nppsAdd_32sc_ISfs** (const **Npp32sc** **pSrc*, **Npp32sc** **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit complex signed integer in place signal add signal, with scaling, then clamp to saturated value.

7.102.1 Detailed Description

Sample by sample addition of two signals.

7.102.2 Function Documentation

7.102.2.1 NppStatus nppsAdd_16s (const Npp16s **pSrc1*, const Npp16s **pSrc2*, Npp16s **pDst*, int *nLength*)

16-bit signed short signal add signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.2 NppStatus nppsAdd_16s32f (const Npp16s **pSrc1*, const Npp16s **pSrc2*, Npp32f **pDst*, int *nLength*)

16-bit signed short signal add signal with 32-bit floating point result, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.3 NppStatus nppsAdd_16s32s_I (const Npp16s * pSrc, Npp32s * pSrcDst, int nLength)

16/32-bit signed short in place signal add signal with 32-bit signed integer results, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.4 NppStatus nppsAdd_16s_I (const Npp16s * pSrc, Npp16s * pSrcDst, int nLength)

16-bit signed short in place signal add signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.5 NppStatus nppsAdd_16s_ISfs (const Npp16s * pSrc, Npp16s * pSrcDst, int nLength, int nScaleFactor)

16-bit signed short in place signal add signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.6 NppStatus nppsAdd_16s_Sfs (const Npp16s * *pSrc1*, const Npp16s * *pSrc2*, Npp16s * *pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short add signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.7 NppStatus nppsAdd_16sc_ISfs (const Npp16sc * *pSrc*, Npp16sc * *pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit complex signed short in place signal add signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer, signal2 elements to be added to signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.8 NppStatus nppsAdd_16sc_Sfs (const Npp16sc * *pSrc1*, const Npp16sc * *pSrc2*, Npp16sc * *pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed complex short add signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.9 NppStatus nppsAdd_16u (const Npp16u **pSrc1*, const Npp16u **pSrc2*, Npp16u **pDst*, int *nLength*)

16-bit unsigned short signal add signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.10 NppStatus nppsAdd_16u_ISfs (const Npp16u **pSrc*, Npp16u **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short in place signal add signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.11 NppStatus nppsAdd_16u_Sfs (const Npp16u **pSrc1*, const Npp16u **pSrc2*, Npp16u **pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short add signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.12 NppStatus nppsAdd_32f (const Npp32f * *pSrc1*, const Npp32f * *pSrc2*, Npp32f * *pDst*, int *nLength*)

32-bit floating point signal add signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.13 NppStatus nppsAdd_32f_I (const Npp32f * *pSrc*, Npp32f * *pSrcDst*, int *nLength*)

32-bit floating point in place signal add signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.14 NppStatus nppsAdd_32fc (const Npp32fc * *pSrc1*, const Npp32fc * *pSrc2*, Npp32fc * *pDst*, int *nLength*)

32-bit complex floating point signal add signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.15 NppStatus nppsAdd_32fc_I (const Npp32fc * pSrc, Npp32fc * pSrcDst, int nLength)

32-bit complex floating point in place signal add signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.16 NppStatus nppsAdd_32s_ISfs (const Npp32s * pSrc, Npp32s * pSrcDst, int nLength, int nScaleFactor)

32-bit signed integer in place signal add signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.17 NppStatus nppsAdd_32s_Sfs (const Npp32s * pSrc1, const Npp32s * pSrc2, Npp32s * pDst, int nLength, int nScaleFactor)

32-bit signed integer add signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.18 NppStatus nppsAdd_32sc_ISfs (const Npp32sc **pSrc*, Npp32sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit complex signed integer in place signal add signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.19 NppStatus nppsAdd_32sc_Sfs (const Npp32sc **pSrc1*, const Npp32sc **pSrc2*, Npp32sc **pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed complex integer add signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.20 NppStatus nppsAdd_32u (const Npp32u **pSrc1*, const Npp32u **pSrc2*, Npp32u **pDst*, int *nLength*)

32-bit unsigned int signal add signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.21 NppStatus nppsAdd_64f (const Npp64f * pSrc1, const Npp64f * pSrc2, Npp64f * pDst, int nLength)

64-bit floating point signal add signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.22 NppStatus nppsAdd_64f_I (const Npp64f * pSrc, Npp64f * pSrcDst, int nLength)

64-bit floating point in place signal add signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.23 NppStatus nppsAdd_64fc (const Npp64fc * pSrc1, const Npp64fc * pSrc2, Npp64fc * pDst, int nLength)

64-bit complex floating point signal add signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.24 NppStatus nppsAdd_64fc_I (const Npp64fc * pSrc, Npp64fc * pSrcDst, int nLength)

64-bit complex floating point in place signal add signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.25 NppStatus nppsAdd_64s_Sfs (const Npp64s * pSrc1, const Npp64s * pSrc2, Npp64s * pDst, int nLength, int nScaleFactor)

64-bit signed integer add signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.26 NppStatus nppsAdd_8u16u (const Npp8u * pSrc1, const Npp8u * pSrc2, Npp16u * pDst, int nLength)

8-bit unsigned char signal add signal with 16-bit unsigned result, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.27 NppStatus nppsAdd_8u_ISfs (const Npp8u * *pSrc*, Npp8u * *pSrcDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char in place signal add signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be added to signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.102.2.28 NppStatus nppsAdd_8u_Sfs (const Npp8u * *pSrc1*, const Npp8u * *pSrc2*, Npp8u * *pDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char add signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be added to signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.103 AddProduct

Adds sample by sample product of two signals to the destination signal.

Functions

- `NppStatus nppsAddProduct_32f (const Npp32f *pSrc1, const Npp32f *pSrc2, Npp32f *pDst, int nLength)`

32-bit floating point signal add product of source signal times destination signal to destination signal, then clamp to saturated value.
- `NppStatus nppsAddProduct_64f (const Npp64f *pSrc1, const Npp64f *pSrc2, Npp64f *pDst, int nLength)`

64-bit floating point signal add product of source signal times destination signal to destination signal, then clamp to saturated value.
- `NppStatus nppsAddProduct_32fc (const Npp32fc *pSrc1, const Npp32fc *pSrc2, Npp32fc *pDst, int nLength)`

32-bit complex floating point signal add product of source signal times destination signal to destination signal, then clamp to saturated value.
- `NppStatus nppsAddProduct_64fc (const Npp64fc *pSrc1, const Npp64fc *pSrc2, Npp64fc *pDst, int nLength)`

64-bit complex floating point signal add product of source signal times destination signal to destination signal, then clamp to saturated value.
- `NppStatus nppsAddProduct_16s_Sfs (const Npp16s *pSrc1, const Npp16s *pSrc2, Npp16s *pDst, int nLength, int nScaleFactor)`

16-bit signed short signal add product of source signal1 times source signal2 to destination signal, with scaling, then clamp to saturated value.
- `NppStatus nppsAddProduct_32s_Sfs (const Npp32s *pSrc1, const Npp32s *pSrc2, Npp32s *pDst, int nLength, int nScaleFactor)`

32-bit signed short signal add product of source signal1 times source signal2 to destination signal, with scaling, then clamp to saturated value.
- `NppStatus nppsAddProduct_16s32s_Sfs (const Npp16s *pSrc1, const Npp16s *pSrc2, Npp32s *pDst, int nLength, int nScaleFactor)`

16-bit signed short signal add product of source signal1 times source signal2 to 32-bit signed integer destination signal, with scaling, then clamp to saturated value.

7.103.1 Detailed Description

Adds sample by sample product of two signals to the destination signal.

7.103.2 Function Documentation

7.103.2.1 NppStatus nppsAddProduct_16s32s_Sfs (const Npp16s * *pSrc1*, const Npp16s * *pSrc2*, Npp32s * *pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal add product of source signal1 times source signal2 to 32-bit signed integer destination signal, with scaling, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

pDst Destination Signal Pointer. product of source1 and source2 signal elements to be added to destination elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.103.2.2 NppStatus nppsAddProduct_16s_Sfs (const Npp16s * *pSrc1*, const Npp16s * *pSrc2*, Npp16s * *pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal add product of source signal1 times source signal2 to destination signal, with scaling, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

pDst Destination Signal Pointer. product of source1 and source2 signal elements to be added to destination elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.103.2.3 NppStatus nppsAddProduct_32f (const Npp32f * *pSrc1*, const Npp32f * *pSrc2*, Npp32f * *pDst*, int *nLength*)

32-bit floating point signal add product of source signal times destination signal to destination signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

pDst Destination Signal Pointer. product of source1 and source2 signal elements to be added to destination elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.103.2.4 NppStatus nppsAddProduct_32fc (const Npp32fc * pSrc1, const Npp32fc * pSrc2, Npp32fc * pDst, int nLength)

32-bit complex floating point signal add product of source signal times destination signal to destination signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

pDst Destination Signal Pointer. product of source1 and source2 signal elements to be added to destination elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.103.2.5 NppStatus nppsAddProduct_32s_Sfs (const Npp32s * pSrc1, const Npp32s * pSrc2, Npp32s * pDst, int nLength, int nScaleFactor)

32-bit signed short signal add product of source signal1 times source signal2 to destination signal, with scaling, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

pDst Destination Signal Pointer. product of source1 and source2 signal elements to be added to destination elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.103.2.6 NppStatus nppsAddProduct_64f (const Npp64f * pSrc1, const Npp64f * pSrc2, Npp64f * pDst, int nLength)

64-bit floating point signal add product of source signal times destination signal to destination signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

pDst Destination Signal Pointer. product of source1 and source2 signal elements to be added to destination elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.103.2.7 NppStatus nppsAddProduct_64fc (const Npp64fc * pSrc1, const Npp64fc * pSrc2, Npp64fc * pDst, int nLength)

64-bit complex floating point signal add product of source signal times destination signal to destination signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

pDst Destination Signal Pointer. product of source1 and source2 signal elements to be added to destination elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104 Mul

Sample by sample multiplication the samples of two signals.

Functions

- **NppStatus nppsMul_16s** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, **Npp16s** *pDst, int nLength)
16-bit signed short signal times signal, then clamp to saturated value.
- **NppStatus nppsMul_32f** (const **Npp32f** *pSrc1, const **Npp32f** *pSrc2, **Npp32f** *pDst, int nLength)
32-bit floating point signal times signal, then clamp to saturated value.
- **NppStatus nppsMul_64f** (const **Npp64f** *pSrc1, const **Npp64f** *pSrc2, **Npp64f** *pDst, int nLength)
64-bit floating point signal times signal, then clamp to saturated value.
- **NppStatus nppsMul_32fc** (const **Npp32fc** *pSrc1, const **Npp32fc** *pSrc2, **Npp32fc** *pDst, int nLength)
32-bit complex floating point signal times signal, then clamp to saturated value.
- **NppStatus nppsMul_64fc** (const **Npp64fc** *pSrc1, const **Npp64fc** *pSrc2, **Npp64fc** *pDst, int nLength)
64-bit complex floating point signal times signal, then clamp to saturated value.
- **NppStatus nppsMul_8u16u** (const **Npp8u** *pSrc1, const **Npp8u** *pSrc2, **Npp16u** *pDst, int nLength)
8-bit unsigned char signal times signal with 16-bit unsigned result, then clamp to saturated value.
- **NppStatus nppsMul_16s32f** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, **Npp32f** *pDst, int nLength)
16-bit signed short signal times signal with 32-bit floating point result, then clamp to saturated value.
- **NppStatus nppsMul_32f32fc** (const **Npp32f** *pSrc1, const **Npp32fc** *pSrc2, **Npp32fc** *pDst, int nLength)
32-bit floating point signal times 32-bit complex floating point signal with complex 32-bit floating point result, then clamp to saturated value.
- **NppStatus nppsMul_8u_Sfs** (const **Npp8u** *pSrc1, const **Npp8u** *pSrc2, **Npp8u** *pDst, int nLength, int nScaleFactor)
8-bit unsigned char signal times signal, scale, then clamp to saturated value.
- **NppStatus nppsMul_16u_Sfs** (const **Npp16u** *pSrc1, const **Npp16u** *pSrc2, **Npp16u** *pDst, int nLength, int nScaleFactor)
16-bit unsigned short signal time signal, scale, then clamp to saturated value.
- **NppStatus nppsMul_16s_Sfs** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, **Npp16s** *pDst, int nLength, int nScaleFactor)
16-bit signed short signal times signal, scale, then clamp to saturated value.
- **NppStatus nppsMul_32s_Sfs** (const **Npp32s** *pSrc1, const **Npp32s** *pSrc2, **Npp32s** *pDst, int nLength, int nScaleFactor)

32-bit signed integer signal times signal, scale, then clamp to saturated value.

- **NppStatus nppsMul_16sc_Sfs** (const **Npp16sc** *pSrc1, const **Npp16sc** *pSrc2, **Npp16sc** *pDst, int nLength, int nScaleFactor)

16-bit signed complex short signal times signal, scale, then clamp to saturated value.

- **NppStatus nppsMul_32sc_Sfs** (const **Npp32sc** *pSrc1, const **Npp32sc** *pSrc2, **Npp32sc** *pDst, int nLength, int nScaleFactor)

32-bit signed complex integer signal times signal, scale, then clamp to saturated value.

- **NppStatus nppsMul_16u16s_Sfs** (const **Npp16u** *pSrc1, const **Npp16s** *pSrc2, **Npp16s** *pDst, int nLength, int nScaleFactor)

16-bit unsigned short signal times 16-bit signed short signal, scale, then clamp to 16-bit signed saturated value.

- **NppStatus nppsMul_16s32s_Sfs** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, **Npp32s** *pDst, int nLength, int nScaleFactor)

16-bit signed short signal times signal, scale, then clamp to 32-bit signed saturated value.

- **NppStatus nppsMul_32s32sc_Sfs** (const **Npp32s** *pSrc1, const **Npp32sc** *pSrc2, **Npp32sc** *pDst, int nLength, int nScaleFactor)

32-bit signed integer signal times 32-bit complex signed integer signal, scale, then clamp to 32-bit complex integer saturated value.

- **NppStatus nppsMul_Low_32s_Sfs** (const **Npp32s** *pSrc1, const **Npp32s** *pSrc2, **Npp32s** *pDst, int nLength, int nScaleFactor)

32-bit signed integer signal times signal, scale, then clamp to saturated value.

- **NppStatus nppsMul_16s_I** (const **Npp16s** *pSrc, **Npp16s** *pSrcDst, int nLength)

16-bit signed short in place signal times signal, then clamp to saturated value.

- **NppStatus nppsMul_32f_I** (const **Npp32f** *pSrc, **Npp32f** *pSrcDst, int nLength)

32-bit floating point in place signal times signal, then clamp to saturated value.

- **NppStatus nppsMul_64f_I** (const **Npp64f** *pSrc, **Npp64f** *pSrcDst, int nLength)

64-bit floating point in place signal times signal, then clamp to saturated value.

- **NppStatus nppsMul_32fc_I** (const **Npp32fc** *pSrc, **Npp32fc** *pSrcDst, int nLength)

32-bit complex floating point in place signal times signal, then clamp to saturated value.

- **NppStatus nppsMul_64fc_I** (const **Npp64fc** *pSrc, **Npp64fc** *pSrcDst, int nLength)

64-bit complex floating point in place signal times signal, then clamp to saturated value.

- **NppStatus nppsMul_32f32fc_I** (const **Npp32f** *pSrc, **Npp32fc** *pSrcDst, int nLength)

32-bit complex floating point in place signal times 32-bit floating point signal, then clamp to 32-bit complex floating point saturated value.

- **NppStatus nppsMul_8u_ISfs** (const **Npp8u** *pSrc, **Npp8u** *pSrcDst, int nLength, int nScaleFactor)

8-bit unsigned char in place signal times signal, with scaling, then clamp to saturated value.

- **NppStatus nppsMul_16u_ISfs** (const **Npp16u** ***pSrc**, **Npp16u** ***pSrcDst**, int **nLength**, int **nScaleFactor**)
16-bit unsigned short in place signal times signal, with scaling, then clamp to saturated value.
- **NppStatus nppsMul_16s_ISfs** (const **Npp16s** ***pSrc**, **Npp16s** ***pSrcDst**, int **nLength**, int **nScaleFactor**)
16-bit signed short in place signal times signal, with scaling, then clamp to saturated value.
- **NppStatus nppsMul_32s_ISfs** (const **Npp32s** ***pSrc**, **Npp32s** ***pSrcDst**, int **nLength**, int **nScaleFactor**)
32-bit signed integer in place signal times signal, with scaling, then clamp to saturated value.
- **NppStatus nppsMul_16sc_ISfs** (const **Npp16sc** ***pSrc**, **Npp16sc** ***pSrcDst**, int **nLength**, int **nScaleFactor**)
16-bit complex signed short in place signal times signal, with scaling, then clamp to saturated value.
- **NppStatus nppsMul_32sc_ISfs** (const **Npp32sc** ***pSrc**, **Npp32sc** ***pSrcDst**, int **nLength**, int **nScaleFactor**)
32-bit complex signed integer in place signal times signal, with scaling, then clamp to saturated value.
- **NppStatus nppsMul_32s32sc_ISfs** (const **Npp32s** ***pSrc**, **Npp32sc** ***pSrcDst**, int **nLength**, int **nScaleFactor**)
32-bit complex signed integer in place signal times 32-bit signed integer signal, with scaling, then clamp to saturated value.

7.104.1 Detailed Description

Sample by sample multiplication the samples of two signals.

7.104.2 Function Documentation

7.104.2.1 NppStatus nppsMul_16s (const Npp16s *pSrc1, const Npp16s *pSrc2, Npp16s *pDst, int nLength)

16-bit signed short signal times signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be multiplied by signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.2 NppStatus nppsMul_16s32f (const Npp16s * pSrc1, const Npp16s * pSrc2, Npp32f * pDst, int nLength)

16-bit signed short signal times signal with 32-bit floating point result, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be multiplied by signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.3 NppStatus nppsMul_16s32s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2, Npp32s * pDst, int nLength, int nScaleFactor)

16-bit signed short signal times signal, scale, then clamp to 32-bit signed saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.4 NppStatus nppsMul_16s_I (const Npp16s * pSrc, Npp16s * pSrcDst, int nLength)

16-bit signed short in place signal times signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.5 NppStatus nppsMul_16s_ISfs (const Npp16s **pSrc*, Npp16s **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short in place signal times signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.6 NppStatus nppsMul_16s_Sfs (const Npp16s **pSrc1*, const Npp16s **pSrc2*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal times signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.7 NppStatus nppsMul_16sc_ISfs (const Npp16sc **pSrc*, Npp16sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit complex signed short in place signal times signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.8 NppStatus nppsMul_16sc_Sfs (const Npp16sc **pSrc1*, const Npp16sc **pSrc2*, Npp16sc **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed complex short signal times signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.9 NppStatus nppsMul_16u16s_Sfs (const Npp16u **pSrc1*, const Npp16s **pSrc2*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal times 16-bit signed short signal, scale, then clamp to 16-bit signed saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.10 NppStatus nppsMul_16u_ISfs (const Npp16u **pSrc*, Npp16u **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short in place signal times signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.11 NppStatus nppsMul_16u_Sfs (const Npp16u **pSrc1*, const Npp16u **pSrc2*, Npp16u **pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal time signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.104.2.12 NppStatus nppsMul_32f (const Npp32f **pSrc1*, const Npp32f **pSrc2*, Npp32f **pDst*, int *nLength*)

32-bit floating point signal times signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.104.2.13 NppStatus nppsMul_32f32fc (const Npp32f **pSrc1*, const Npp32fc **pSrc2*, Npp32fc **pDst*, int *nLength*)

32-bit floating point signal times 32-bit complex floating point signal with complex 32-bit floating point result, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.104.2.14 NppStatus nppsMul_32f32fc_I (const Npp32f * pSrc, Npp32fc * pSrcDst, int nLength)

32-bit complex floating point in place signal times 32-bit floating point signal, then clamp to 32-bit complex floating point saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.15 NppStatus nppsMul_32f_I (const Npp32f * pSrc, Npp32f * pSrcDst, int nLength)

32-bit floating point in place signal times signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.16 NppStatus nppsMul_32fc (const Npp32fc * pSrc1, const Npp32fc * pSrc2, Npp32fc * pDst, int nLength)

32-bit complex floating point signal times signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be multiplied by signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.17 NppStatus nppsMul_32fc_I (const Npp32fc * pSrc, Npp32fc * pSrcDst, int nLength)

32-bit complex floating point in place signal times signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.18 NppStatus nppsMul_32s32sc_ISfs (const Npp32s * pSrc, Npp32sc * pSrcDst, int nLength, int nScaleFactor)

32-bit complex signed integer in place signal times 32-bit signed integer signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.19 NppStatus nppsMul_32s32sc_Sfs (const Npp32s * pSrc1, const Npp32sc * pSrc2, Npp32sc * pDst, int nLength, int nScaleFactor)

32-bit signed integer signal times 32-bit complex signed integer signal, scale, then clamp to 32-bit complex integer saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.20 NppStatus nppsMul_32s_ISfs (const Npp32s * pSrc, Npp32s * pSrcDst, int nLength, int nScaleFactor)

32-bit signed integer in place signal times signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.21 NppStatus nppsMul_32s_Sfs (const Npp32s * pSrc1, const Npp32s * pSrc2, Npp32s * pDst, int nLength, int nScaleFactor)

32-bit signed integer signal times signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.22 NppStatus nppsMul_32sc_ISfs (const Npp32sc * pSrc, Npp32sc * pSrcDst, int nLength, int nScaleFactor)

32-bit complex signed integer in place signal times signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.23 NppStatus nppsMul_32sc_Sfs (const Npp32sc * pSrc1, const Npp32sc * pSrc2, Npp32sc * pDst, int nLength, int nScaleFactor)

32-bit signed complex integer signal times signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.24 NppStatus nppsMul_64f (const Npp64f * pSrc1, const Npp64f * pSrc2, Npp64f * pDst, int nLength)

64-bit floating point signal times signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.25 NppStatus nppsMul_64f_I (const Npp64f * pSrc, Npp64f * pSrcDst, int nLength)

64-bit floating point in place signal times signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer, signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.26 NppStatus nppsMul_64fc (const Npp64fc * pSrc1, const Npp64fc * pSrc2, Npp64fc * pDst, int nLength)

64-bit complex floating point signal times signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be multiplied by signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.27 NppStatus nppsMul_64fc_I (const Npp64fc * pSrc, Npp64fc * pSrcDst, int nLength)

64-bit complex floating point in place signal times signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.28 NppStatus nppsMul_8u16u (const Npp8u * pSrc1, const Npp8u * pSrc2, Npp16u * pDst, int nLength)

8-bit unsigned char signal times signal with 16-bit unsigned result, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be multiplied by signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.29 NppStatus nppsMul_8u_ISfs (const Npp8u * pSrc, Npp8u * pSrcDst, int nLength, int nScaleFactor)

8-bit unsigned char in place signal times signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be multiplied by signal1 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.30 NppStatus nppsMul_8u_Sfs (const Npp8u * pSrc1, const Npp8u * pSrc2, Npp8u * pDst, int nLength, int nScaleFactor)

8-bit unsigned char signal times signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.104.2.31 NppStatus nppsMul_Low_32s_Sfs (const Npp32s * pSrc1, const Npp32s * pSrc2, Npp32s * pDst, int nLength, int nScaleFactor)

32-bit signed integer signal times signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal2 elements to be multiplied by signal1 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105 Sub

Sample by sample subtraction of the samples of two signals.

Functions

- **NppStatus nppsSub_16s** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, **Npp16s** *pDst, int nLength)
16-bit signed short signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_32f** (const **Npp32f** *pSrc1, const **Npp32f** *pSrc2, **Npp32f** *pDst, int nLength)
32-bit floating point signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_64f** (const **Npp64f** *pSrc1, const **Npp64f** *pSrc2, **Npp64f** *pDst, int nLength)
64-bit floating point signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_32fc** (const **Npp32fc** *pSrc1, const **Npp32fc** *pSrc2, **Npp32fc** *pDst, int nLength)
32-bit complex floating point signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_64fc** (const **Npp64fc** *pSrc1, const **Npp64fc** *pSrc2, **Npp64fc** *pDst, int nLength)
64-bit complex floating point signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_16s32f** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, **Npp32f** *pDst, int nLength)
16-bit signed short signal subtract 16-bit signed short signal, then clamp and convert to 32-bit floating point saturated value.
- **NppStatus nppsSub_8u_Sfs** (const **Npp8u** *pSrc1, const **Npp8u** *pSrc2, **Npp8u** *pDst, int nLength, int nScaleFactor)
8-bit unsigned char signal subtract signal, scale, then clamp to saturated value.
- **NppStatus nppsSub_16u_Sfs** (const **Npp16u** *pSrc1, const **Npp16u** *pSrc2, **Npp16u** *pDst, int nLength, int nScaleFactor)
16-bit unsigned short signal subtract signal, scale, then clamp to saturated value.
- **NppStatus nppsSub_16s_Sfs** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, **Npp16s** *pDst, int nLength, int nScaleFactor)
16-bit signed short signal subtract signal, scale, then clamp to saturated value.
- **NppStatus nppsSub_32s_Sfs** (const **Npp32s** *pSrc1, const **Npp32s** *pSrc2, **Npp32s** *pDst, int nLength, int nScaleFactor)
32-bit signed integer signal subtract signal, scale, then clamp to saturated value.
- **NppStatus nppsSub_16sc_Sfs** (const **Npp16sc** *pSrc1, const **Npp16sc** *pSrc2, **Npp16sc** *pDst, int nLength, int nScaleFactor)
16-bit signed complex short signal subtract signal, scale, then clamp to saturated value.
- **NppStatus nppsSub_32sc_Sfs** (const **Npp32sc** *pSrc1, const **Npp32sc** *pSrc2, **Npp32sc** *pDst, int nLength, int nScaleFactor)

32-bit signed complex integer signal subtract signal, then clamp to saturated value.

- **NppStatus nppsSub_16s_I** (const **Npp16s** *pSrc, **Npp16s** *pSrcDst, int nLength)
16-bit signed short in place signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_32f_I** (const **Npp32f** *pSrc, **Npp32f** *pSrcDst, int nLength)
32-bit floating point in place signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_64f_I** (const **Npp64f** *pSrc, **Npp64f** *pSrcDst, int nLength)
64-bit floating point in place signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_32fc_I** (const **Npp32fc** *pSrc, **Npp32fc** *pSrcDst, int nLength)
32-bit complex floating point in place signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_64fc_I** (const **Npp64fc** *pSrc, **Npp64fc** *pSrcDst, int nLength)
64-bit complex floating point in place signal subtract signal, then clamp to saturated value.
- **NppStatus nppsSub_8u_ISfs** (const **Npp8u** *pSrc, **Npp8u** *pSrcDst, int nLength, int nScaleFactor)
8-bit unsigned char in place signal subtract signal, with scaling, then clamp to saturated value.
- **NppStatus nppsSub_16u_ISfs** (const **Npp16u** *pSrc, **Npp16u** *pSrcDst, int nLength, int nScaleFactor)
16-bit unsigned short in place signal subtract signal, with scaling, then clamp to saturated value.
- **NppStatus nppsSub_16s_ISfs** (const **Npp16s** *pSrc, **Npp16s** *pSrcDst, int nLength, int nScaleFactor)
16-bit signed short in place signal subtract signal, with scaling, then clamp to saturated value.
- **NppStatus nppsSub_32s_ISfs** (const **Npp32s** *pSrc, **Npp32s** *pSrcDst, int nLength, int nScaleFactor)
32-bit signed integer in place signal subtract signal, with scaling, then clamp to saturated value.
- **NppStatus nppsSub_16sc_ISfs** (const **Npp16sc** *pSrc, **Npp16sc** *pSrcDst, int nLength, int nScaleFactor)
16-bit complex signed short in place signal subtract signal, with scaling, then clamp to saturated value.
- **NppStatus nppsSub_32sc_ISfs** (const **Npp32sc** *pSrc, **Npp32sc** *pSrcDst, int nLength, int nScaleFactor)
32-bit complex signed integer in place signal subtract signal, with scaling, then clamp to saturated value.

7.105.1 Detailed Description

Sample by sample subtraction of the samples of two signals.

7.105.2 Function Documentation

7.105.2.1 NppStatus nppsSub_16s (const Npp16s * pSrc1, const Npp16s * pSrc2, Npp16s * pDst, int nLength)

16-bit signed short signal subtract signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal1 elements to be subtracted from signal2 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.2 NppStatus nppsSub_16s32f (const Npp16s **pSrc1*, const Npp16s **pSrc2*, Npp32f **pDst*, int *nLength*)

16-bit signed short signal subtract 16-bit signed short signal, then clamp and convert to 32-bit floating point saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal1 elements to be subtracted from signal2 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.3 NppStatus nppsSub_16s_I (const Npp16s **pSrc*, Npp16s **pSrcDst*, int *nLength*)

16-bit signed short in place signal subtract signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.4 NppStatus nppsSub_16s_ISfs (const Npp16s **pSrc*, Npp16s **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short in place signal subtract signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.5 NppStatus nppsSub_16s_Sfs (const Npp16s **pSrc1*, const Npp16s **pSrc2*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal subtract signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer, signal1 elements to be subtracted from signal2 elements.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.6 NppStatus nppsSub_16sc_ISfs (const Npp16sc **pSrc*, Npp16sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit complex signed short in place signal subtract signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.7 NppStatus nppsSub_16sc_Sfs (const Npp16sc **pSrc1*, const Npp16sc **pSrc2*, Npp16sc **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed complex short signal subtract signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 elements to be subtracted from signal2 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.8 NppStatus nppsSub_16u_ISfs (const Npp16u **pSrc*, Npp16u **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short in place signal subtract signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.9 NppStatus nppsSub_16u_Sfs (const Npp16u **pSrc1*, const Npp16u **pSrc2*, Npp16u **pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal subtract signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 elements to be subtracted from signal2 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.10 NppStatus nppsSub_32f (const Npp32f **pSrc1*, const Npp32f **pSrc2*, Npp32f **pDst*, int *nLength*)

32-bit floating point signal subtract signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal1 elements to be subtracted from signal2 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.11 NppStatus nppsSub_32f_I (const Npp32f **pSrc*, Npp32f **pSrcDst*, int *nLength*)

32-bit floating point in place signal subtract signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.12 NppStatus nppsSub_32fc (const Npp32fc **pSrc1*, const Npp32fc **pSrc2*, Npp32fc **pDst*, int *nLength*)

32-bit complex floating point signal subtract signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal1 elements to be subtracted from signal2 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.13 NppStatus nppsSub_32fc_I (const Npp32fc **pSrc*, Npp32fc **pSrcDst*, int *nLength*)

32-bit complex floating point in place signal subtract signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.14 NppStatus nppsSub_32s_ISfs (const Npp32s * pSrc, Npp32s * pSrcDst, int nLength, int nScaleFactor)

32-bit signed integer in place signal subtract signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.15 NppStatus nppsSub_32s_Sfs (const Npp32s * pSrc1, const Npp32s * pSrc2, Npp32s * pDst, int nLength, int nScaleFactor)

32-bit signed integer signal subtract signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 elements to be subtracted from signal2 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.16 NppStatus nppsSub_32sc_ISfs (const Npp32sc * pSrc, Npp32sc * pSrcDst, int nLength, int nScaleFactor)

32-bit complex signed integer in place signal subtract signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.17 NppStatus nppsSub_32sc_Sfs (const Npp32sc **pSrc1*, const Npp32sc **pSrc2*, Npp32sc **pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed complex integer signal subtract signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 elements to be subtracted from signal2 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.18 NppStatus nppsSub_64f (const Npp64f **pSrc1*, const Npp64f **pSrc2*, Npp64f **pDst*, int *nLength*)

64-bit floating point signal subtract signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 elements to be subtracted from signal2 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.19 NppStatus nppsSub_64f_I (const Npp64f **pSrc*, Npp64f **pSrcDst*, int *nLength*)

64-bit floating point in place signal subtract signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer, signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.20 NppStatus nppsSub_64fc (const Npp64fc * pSrc1, const Npp64fc * pSrc2, Npp64fc * pDst, int nLength)

64-bit complex floating point signal subtract signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal1 elements to be subtracted from signal2 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.21 NppStatus nppsSub_64fc_I (const Npp64fc * pSrc, Npp64fc * pSrcDst, int nLength)

64-bit complex floating point in place signal subtract signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.22 NppStatus nppsSub_8u_ISfs (const Npp8u * pSrc, Npp8u * pSrcDst, int nLength, int nScaleFactor)

8-bit unsigned char in place signal subtract signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 elements to be subtracted from signal2 elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.105.2.23 NppStatus nppsSub_8u_Sfs (const Npp8u * *pSrc1*, const Npp8u * *pSrc2*, Npp8u * *pDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char signal subtract signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 elements to be subtracted from signal2 elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.106 Div

Sample by sample division of the samples of two signals.

Functions

- **NppStatus nppsDiv_8u_Sfs** (const **Npp8u** *pSrc1, const **Npp8u** *pSrc2, **Npp8u** *pDst, int nLength, int nScaleFactor)
8-bit unsigned char signal divide signal, scale, then clamp to saturated value.
- **NppStatus nppsDiv_16u_Sfs** (const **Npp16u** *pSrc1, const **Npp16u** *pSrc2, **Npp16u** *pDst, int nLength, int nScaleFactor)
16-bit unsigned short signal divide signal, scale, then clamp to saturated value.
- **NppStatus nppsDiv_16s_Sfs** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, **Npp16s** *pDst, int nLength, int nScaleFactor)
16-bit signed short signal divide signal, scale, then clamp to saturated value.
- **NppStatus nppsDiv_32s_Sfs** (const **Npp32s** *pSrc1, const **Npp32s** *pSrc2, **Npp32s** *pDst, int nLength, int nScaleFactor)
32-bit signed integer signal divide signal, scale, then clamp to saturated value.
- **NppStatus nppsDiv_16sc_Sfs** (const **Npp16sc** *pSrc1, const **Npp16sc** *pSrc2, **Npp16sc** *pDst, int nLength, int nScaleFactor)
16-bit signed complex short signal divide signal, scale, then clamp to saturated value.
- **NppStatus nppsDiv_32s16s_Sfs** (const **Npp16s** *pSrc1, const **Npp32s** *pSrc2, **Npp16s** *pDst, int nLength, int nScaleFactor)
32-bit signed integer signal divided by 16-bit signed short signal, scale, then clamp to 16-bit signed short saturated value.
- **NppStatus nppsDiv_32f** (const **Npp32f** *pSrc1, const **Npp32f** *pSrc2, **Npp32f** *pDst, int nLength)
32-bit floating point signal divide signal, then clamp to saturated value.
- **NppStatus nppsDiv_64f** (const **Npp64f** *pSrc1, const **Npp64f** *pSrc2, **Npp64f** *pDst, int nLength)
64-bit floating point signal divide signal, then clamp to saturated value.
- **NppStatus nppsDiv_32fc** (const **Npp32fc** *pSrc1, const **Npp32fc** *pSrc2, **Npp32fc** *pDst, int nLength)
32-bit complex floating point signal divide signal, then clamp to saturated value.
- **NppStatus nppsDiv_64fc** (const **Npp64fc** *pSrc1, const **Npp64fc** *pSrc2, **Npp64fc** *pDst, int nLength)
64-bit complex floating point signal divide signal, then clamp to saturated value.
- **NppStatus nppsDiv_8u_ISfs** (const **Npp8u** *pSrc, **Npp8u** *pSrcDst, int nLength, int nScaleFactor)
8-bit unsigned char in place signal divide signal, with scaling, then clamp to saturated value.
- **NppStatus nppsDiv_16u_ISfs** (const **Npp16u** *pSrc, **Npp16u** *pSrcDst, int nLength, int nScaleFactor)

16-bit unsigned short in place signal divide signal, with scaling, then clamp to saturated value.

- [NppStatus nppsDiv_16s_ISfs \(const Npp16s *pSrc, Npp16s *pSrcDst, int nLength, int nScaleFactor\)](#)

16-bit signed short in place signal divide signal, with scaling, then clamp to saturated value.

- [NppStatus nppsDiv_16sc_ISfs \(const Npp16sc *pSrc, Npp16sc *pSrcDst, int nLength, int nScaleFactor\)](#)

16-bit complex signed short in place signal divide signal, with scaling, then clamp to saturated value.

- [NppStatus nppsDiv_32s_ISfs \(const Npp32s *pSrc, Npp32s *pSrcDst, int nLength, int nScaleFactor\)](#)

32-bit signed integer in place signal divide signal, with scaling, then clamp to saturated value.

- [NppStatus nppsDiv_32f_I \(const Npp32f *pSrc, Npp32f *pSrcDst, int nLength\)](#)

32-bit floating point in place signal divide signal, then clamp to saturated value.

- [NppStatus nppsDiv_64f_I \(const Npp64f *pSrc, Npp64f *pSrcDst, int nLength\)](#)

64-bit floating point in place signal divide signal, then clamp to saturated value.

- [NppStatus nppsDiv_32fc_I \(const Npp32fc *pSrc, Npp32fc *pSrcDst, int nLength\)](#)

32-bit complex floating point in place signal divide signal, then clamp to saturated value.

- [NppStatus nppsDiv_64fc_I \(const Npp64fc *pSrc, Npp64fc *pSrcDst, int nLength\)](#)

64-bit complex floating point in place signal divide signal, then clamp to saturated value.

7.106.1 Detailed Description

Sample by sample division of the samples of two signals.

7.106.2 Function Documentation

7.106.2.1 [NppStatus nppsDiv_16s_ISfs \(const Npp16s *pSrc, Npp16s *pSrcDst, int nLength, int nScaleFactor\)](#)

16-bit signed short in place signal divide signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.2 NppStatus nppsDiv_16s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2, Npp16s * pDst, int nLength, int nScaleFactor)

16-bit signed short signal divide signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.3 NppStatus nppsDiv_16sc_ISfs (const Npp16sc * pSrc, Npp16sc * pSrcDst, int nLength, int nScaleFactor)

16-bit complex signed short in place signal divide signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.4 NppStatus nppsDiv_16sc_Sfs (const Npp16sc * pSrc1, const Npp16sc * pSrc2, Npp16sc * pDst, int nLength, int nScaleFactor)

16-bit signed complex short signal divide signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.5 NppStatus nppsDiv_16u_ISfs (const Npp16u * pSrc, Npp16u * pSrcDst, int nLength, int nScaleFactor)

16-bit unsigned short in place signal divide signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.6 NppStatus nppsDiv_16u_Sfs (const Npp16u * pSrc1, const Npp16u * pSrc2, Npp16u * pDst, int nLength, int nScaleFactor)

16-bit unsigned short signal divide signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.7 NppStatus nppsDiv_32f (const Npp32f * pSrc1, const Npp32f * pSrc2, Npp32f * pDst, int nLength)

32-bit floating point signal divide signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.8 NppStatus nppsDiv_32f_I (const Npp32f * pSrc, Npp32f * pSrcDst, int nLength)

32-bit floating point in place signal divide signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.9 NppStatus nppsDiv_32fc (const Npp32fc * pSrc1, const Npp32fc * pSrc2, Npp32fc * pDst, int nLength)

32-bit complex floating point signal divide signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.10 NppStatus nppsDiv_32fc_I (const Npp32fc * pSrc, Npp32fc * pSrcDst, int nLength)

32-bit complex floating point in place signal divide signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.11 NppStatus nppsDiv_32s16s_Sfs (const Npp16s * pSrc1, const Npp32s * pSrc2, Npp16s * pDst, int nLength, int nScaleFactor)

32-bit signed integer signal divided by 16-bit signed short signal, scale, then clamp to 16-bit signed short saturated value.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.12 NppStatus nppsDiv_32s_JSfs (const Npp32s * *pSrc*, Npp32s * *pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer in place signal divide signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.13 NppStatus nppsDiv_32s_Sfs (const Npp32s * *pSrc1*, const Npp32s * *pSrc2*, Npp32s * *pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer signal divide signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.14 NppStatus nppsDiv_64f (const Npp64f * pSrc1, const Npp64f * pSrc2, Npp64f * pDst, int nLength)

64-bit floating point signal divide signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.15 NppStatus nppsDiv_64f_I (const Npp64f * pSrc, Npp64f * pSrcDst, int nLength)

64-bit floating point in place signal divide signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.16 NppStatus nppsDiv_64fc (const Npp64fc * pSrc1, const Npp64fc * pSrc2, Npp64fc * pDst, int nLength)

64-bit complex floating point signal divide signal, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.17 NppStatus nppsDiv_64fc_I (const Npp64fc * pSrc, Npp64fc * pSrcDst, int nLength)

64-bit complex floating point in place signal divide signal, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.18 NppStatus nppsDiv_8u_ISfs (const Npp8u * pSrc, Npp8u * pSrcDst, int nLength, int nScaleFactor)

8-bit unsigned char in place signal divide signal, with scaling, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.106.2.19 NppStatus nppsDiv_8u_Sfs (const Npp8u * pSrc1, const Npp8u * pSrc2, Npp8u * pDst, int nLength, int nScaleFactor)

8-bit unsigned char signal divide signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.107 Div_Round

Sample by sample division of the samples of two signals with rounding.

Functions

- **NppStatus nppsDiv_Round_8u_Sfs** (const Npp8u *pSrc1, const Npp8u *pSrc2, Npp8u *pDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)
8-bit unsigned char signal divide signal, scale, then clamp to saturated value.
- **NppStatus nppsDiv_Round_16u_Sfs** (const Npp16u *pSrc1, const Npp16u *pSrc2, Npp16u *pDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)
16-bit unsigned short signal divide signal, scale, round, then clamp to saturated value.
- **NppStatus nppsDiv_Round_16s_Sfs** (const Npp16s *pSrc1, const Npp16s *pSrc2, Npp16s *pDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)
16-bit signed short signal divide signal, scale, round, then clamp to saturated value.
- **NppStatus nppsDiv_Round_8u_ISfs** (const Npp8u *pSrc, Npp8u *pSrcDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)
8-bit unsigned char in place signal divide signal, with scaling, rounding then clamp to saturated value.
- **NppStatus nppsDiv_Round_16u_ISfs** (const Npp16u *pSrc, Npp16u *pSrcDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)
16-bit unsigned short in place signal divide signal, with scaling, rounding then clamp to saturated value.
- **NppStatus nppsDiv_Round_16s_ISfs** (const Npp16s *pSrc, Npp16s *pSrcDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)
16-bit signed short in place signal divide signal, with scaling, rounding then clamp to saturated value.

7.107.1 Detailed Description

Sample by sample division of the samples of two signals with rounding.

7.107.2 Function Documentation

7.107.2.1 NppStatus nppsDiv_Round_16s_ISfs (const Npp16s * pSrc, Npp16s * pSrcDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)

16-bit signed short in place signal divide signal, with scaling, rounding then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements
nLength Signal Length.

nRndMode various rounding modes.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

**7.107.2.2 NppStatus nppsDiv_Round_16s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2,
Npp16s * pDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)**

16-bit signed short signal divide signal, scale, round, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.
pDst Destination Signal Pointer.
nLength Signal Length.
nRndMode various rounding modes.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

**7.107.2.3 NppStatus nppsDiv_Round_16u_ISfs (const Npp16u * pSrc, Npp16u * pSrcDst, int
nLength, NppRoundMode nRndMode, int nScaleFactor)**

16-bit unsigned short in place signal divide signal, with scaling, rounding then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements
nLength Signal Length.
nRndMode various rounding modes.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

**7.107.2.4 NppStatus nppsDiv_Round_16u_Sfs (const Npp16u * pSrc1, const Npp16u * pSrc2,
Npp16u * pDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)**

16-bit unsigned short signal divide signal, scale, round, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.
pDst Destination Signal Pointer.

nLength Signal Length.

nRndMode various rounding modes.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.107.2.5 NppStatus nppsDiv_Round_8u_ISfs (const Npp8u * pSrc, Npp8u * pSrcDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)

8-bit unsigned char in place signal divide signal, with scaling, rounding then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal1 divisor elements to be divided into signal2 dividend elements

nLength Signal Length.

nRndMode various rounding modes.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.107.2.6 NppStatus nppsDiv_Round_8u_Sfs (const Npp8u * pSrc1, const Npp8u * pSrc2, Npp8u * pDst, int nLength, NppRoundMode nRndMode, int nScaleFactor)

8-bit unsigned char signal divide signal, scale, then clamp to saturated value.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer, signal1 divisor elements to be divided into signal2 dividend elements.

pDst Destination Signal Pointer.

nLength Signal Length.

nRndMode various rounding modes.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.108 Abs

Absolute value of each sample of a signal.

Functions

- `NppStatus nppsAbs_16s (const Npp16s *pSrc, Npp16s *pDst, int nLength)`
16-bit signed short signal absolute value.
- `NppStatus nppsAbs_32s (const Npp32s *pSrc, Npp32s *pDst, int nLength)`
32-bit signed integer signal absolute value.
- `NppStatus nppsAbs_32f (const Npp32f *pSrc, Npp32f *pDst, int nLength)`
32-bit floating point signal absolute value.
- `NppStatus nppsAbs_64f (const Npp64f *pSrc, Npp64f *pDst, int nLength)`
64-bit floating point signal absolute value.
- `NppStatus nppsAbs_16s_I (Npp16s *pSrcDst, int nLength)`
16-bit signed short signal absolute value.
- `NppStatus nppsAbs_32s_I (Npp32s *pSrcDst, int nLength)`
32-bit signed integer signal absolute value.
- `NppStatus nppsAbs_32f_I (Npp32f *pSrcDst, int nLength)`
32-bit floating point signal absolute value.
- `NppStatus nppsAbs_64f_I (Npp64f *pSrcDst, int nLength)`
64-bit floating point signal absolute value.

7.108.1 Detailed Description

Absolute value of each sample of a signal.

7.108.2 Function Documentation

7.108.2.1 `NppStatus nppsAbs_16s (const Npp16s *pSrc, Npp16s *pDst, int nLength)`

16-bit signed short signal absolute value.

Parameters:

- `pSrc` Source Signal Pointer.
`pDst` Destination Signal Pointer.
`nLength` Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.108.2.2 NppStatus nppsAbs_16s_I (Npp16s **pSrcDst*, int *nLength*)

16-bit signed short signal absolute value.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.108.2.3 NppStatus nppsAbs_32f (const Npp32f **pSrc*, Npp32f **pDst*, int *nLength*)

32-bit floating point signal absolute value.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.108.2.4 NppStatus nppsAbs_32f_I (Npp32f **pSrcDst*, int *nLength*)

32-bit floating point signal absolute value.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.108.2.5 NppStatus nppsAbs_32s (const Npp32s **pSrc*, Npp32s **pDst*, int *nLength*)

32-bit signed integer signal absolute value.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.108.2.6 NppStatus nppsAbs_32s_I (Npp32s **pSrcDst*, int *nLength*)

32-bit signed integer signal absolute value.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.108.2.7 NppStatus nppsAbs_64f (const Npp64f **pSrc*, Npp64f **pDst*, int *nLength*)

64-bit floating point signal absolute value.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.108.2.8 NppStatus nppsAbs_64f_I (Npp64f **pSrcDst*, int *nLength*)

64-bit floating point signal absolute value.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109 Sqr

Squares each sample of a signal.

Functions

- `NppStatus nppsSqr_32f (const Npp32f *pSrc, Npp32f *pDst, int nLength)`
32-bit floating point signal squared.
- `NppStatus nppsSqr_64f (const Npp64f *pSrc, Npp64f *pDst, int nLength)`
64-bit floating point signal squared.
- `NppStatus nppsSqr_32fc (const Npp32fc *pSrc, Npp32fc *pDst, int nLength)`
32-bit complex floating point signal squared.
- `NppStatus nppsSqr_64fc (const Npp64fc *pSrc, Npp64fc *pDst, int nLength)`
64-bit complex floating point signal squared.
- `NppStatus nppsSqr_32f_I (Npp32f *pSrcDst, int nLength)`
32-bit floating point signal squared.
- `NppStatus nppsSqr_64f_I (Npp64f *pSrcDst, int nLength)`
64-bit floating point signal squared.
- `NppStatus nppsSqr_32fc_I (Npp32fc *pSrcDst, int nLength)`
32-bit complex floating point signal squared.
- `NppStatus nppsSqr_64fc_I (Npp64fc *pSrcDst, int nLength)`
64-bit complex floating point signal squared.
- `NppStatus nppsSqr_8u_Sfs (const Npp8u *pSrc, Npp8u *pDst, int nLength, int nScaleFactor)`
8-bit unsigned char signal squared, scale, then clamp to saturated value.
- `NppStatus nppsSqr_16u_Sfs (const Npp16u *pSrc, Npp16u *pDst, int nLength, int nScaleFactor)`
16-bit unsigned short signal squared, scale, then clamp to saturated value.
- `NppStatus nppsSqr_16s_Sfs (const Npp16s *pSrc, Npp16s *pDst, int nLength, int nScaleFactor)`
16-bit signed short signal squared, scale, then clamp to saturated value.
- `NppStatus nppsSqr_16sc_Sfs (const Npp16sc *pSrc, Npp16sc *pDst, int nLength, int nScaleFactor)`
16-bit complex signed short signal squared, scale, then clamp to saturated value.
- `NppStatus nppsSqr_8u_ISfs (Npp8u *pSrcDst, int nLength, int nScaleFactor)`
8-bit unsigned char signal squared, scale, then clamp to saturated value.
- `NppStatus nppsSqr_16u_ISfs (Npp16u *pSrcDst, int nLength, int nScaleFactor)`
16-bit unsigned short signal squared, scale, then clamp to saturated value.

- **NppStatus nppsSqr_16s_ISfs (Npp16s *pSrcDst, int nLength, int nScaleFactor)**
16-bit signed short signal squared, scale, then clamp to saturated value.
- **NppStatus nppsSqr_16sc_ISfs (Npp16sc *pSrcDst, int nLength, int nScaleFactor)**
16-bit complex signed short signal squared, scale, then clamp to saturated value.

7.109.1 Detailed Description

Squares each sample of a signal.

7.109.2 Function Documentation

7.109.2.1 NppStatus nppsSqr_16s_ISfs (Npp16s * *pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal squared, scale, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.2 NppStatus nppsSqr_16s_Sfs (const Npp16s * *pSrc*, Npp16s * *pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal squared, scale, then clamp to saturated value.

Parameters:

- pSrc* Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.3 NppStatus nppsSqr_16sc_ISfs (Npp16sc * *pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit complex signed short signal squared, scale, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.4 NppStatus nppsSqr_16sc_Sfs (const Npp16sc **pSrc*, Npp16sc **pDst*, int *nLength*, int *nScaleFactor*)

16-bit complex signed short signal squared, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.5 NppStatus nppsSqr_16u_ISfs (Npp16u **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal squared, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.6 NppStatus nppsSqr_16u_Sfs (const Npp16u **pSrc*, Npp16u **pDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal squared, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.7 NppStatus nppsSqr_32f (const Npp32f **pSrc*, Npp32f **pDst*, int *nLength*)

32-bit floating point signal squared.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.8 NppStatus nppsSqr_32f_I (Npp32f **pSrcDst*, int *nLength*)

32-bit floating point signal squared.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.9 NppStatus nppsSqr_32fc (const Npp32fc **pSrc*, Npp32fc **pDst*, int *nLength*)

32-bit complex floating point signal squared.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.10 NppStatus nppsSqr_32fc_I (Npp32fc **pSrcDst*, int *nLength*)

32-bit complex floating point signal squared.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.11 NppStatus nppsSqr_64f (const Npp64f * pSrc, Npp64f * pDst, int nLength)

64-bit floating point signal squared.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.12 NppStatus nppsSqr_64f_I (Npp64f * pSrcDst, int nLength)

64-bit floating point signal squared.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.13 NppStatus nppsSqr_64fc (const Npp64fc * pSrc, Npp64fc * pDst, int nLength)

64-bit complex floating point signal squared.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.14 NppStatus nppsSqr_64fc_I (Npp64fc * pSrcDst, int nLength)

64-bit complex floating point signal squared.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.15 NppStatus nppsSqr_8u_ISfs (Npp8u * *pSrcDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char signal squared, scale, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Signal Pointer.
- nLength* Signal Length.
- nScaleFactor* Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.109.2.16 NppStatus nppsSqr_8u_Sfs (const Npp8u * *pSrc*, Npp8u * *pDst*, int *nLength*, int *nScaleFactor*)

8-bit unsigned char signal squared, scale, then clamp to saturated value.

Parameters:

- pSrc* Source Signal Pointer.
- pDst* Destination Signal Pointer.
- nLength* Signal Length.
- nScaleFactor* Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110 Sqrt

Square root of each sample of a signal.

Functions

- **NppStatus nppsSqrt_32f** (const **Npp32f** *pSrc, **Npp32f** *pDst, int nLength)
32-bit floating point signal square root.
- **NppStatus nppsSqrt_64f** (const **Npp64f** *pSrc, **Npp64f** *pDst, int nLength)
64-bit floating point signal square root.
- **NppStatus nppsSqrt_32fc** (const **Npp32fc** *pSrc, **Npp32fc** *pDst, int nLength)
32-bit complex floating point signal square root.
- **NppStatus nppsSqrt_64fc** (const **Npp64fc** *pSrc, **Npp64fc** *pDst, int nLength)
64-bit complex floating point signal square root.
- **NppStatus nppsSqrt_32f_I** (**Npp32f** *pSrcDst, int nLength)
32-bit floating point signal square root.
- **NppStatus nppsSqrt_64f_I** (**Npp64f** *pSrcDst, int nLength)
64-bit floating point signal square root.
- **NppStatus nppsSqrt_32fc_I** (**Npp32fc** *pSrcDst, int nLength)
32-bit complex floating point signal square root.
- **NppStatus nppsSqrt_64fc_I** (**Npp64fc** *pSrcDst, int nLength)
64-bit complex floating point signal square root.
- **NppStatus nppsSqrt_8u_Sfs** (const **Npp8u** *pSrc, **Npp8u** *pDst, int nLength, int nScaleFactor)
8-bit unsigned char signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_16u_Sfs** (const **Npp16u** *pSrc, **Npp16u** *pDst, int nLength, int nScaleFactor)
16-bit unsigned short signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_16s_Sfs** (const **Npp16s** *pSrc, **Npp16s** *pDst, int nLength, int nScaleFactor)
16-bit signed short signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_16sc_Sfs** (const **Npp16sc** *pSrc, **Npp16sc** *pDst, int nLength, int nScaleFactor)
16-bit complex signed short signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_64s_Sfs** (const **Npp64s** *pSrc, **Npp64s** *pDst, int nLength, int nScaleFactor)
64-bit signed integer signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_32s16s_Sfs** (const **Npp32s** *pSrc, **Npp16s** *pDst, int nLength, int nScaleFactor)
32-bit signed integer signal square root, scale, then clamp to 16-bit signed integer saturated value.

- **NppStatus nppsSqrt_64s16s_Sfs** (const **Npp64s** **pSrc*, **Npp16s** **pDst*, int *nLength*, int *nScaleFactor*)
64-bit signed integer signal square root, scale, then clamp to 16-bit signed integer saturated value.
- **NppStatus nppsSqrt_8u_ISfs** (**Npp8u** **pSrcDst*, int *nLength*, int *nScaleFactor*)
8-bit unsigned char signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_16u_ISfs** (**Npp16u** **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit unsigned short signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_16s_ISfs** (**Npp16s** **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit signed short signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_16sc_ISfs** (**Npp16sc** **pSrcDst*, int *nLength*, int *nScaleFactor*)
16-bit complex signed short signal square root, scale, then clamp to saturated value.
- **NppStatus nppsSqrt_64s_ISfs** (**Npp64s** **pSrcDst*, int *nLength*, int *nScaleFactor*)
64-bit signed integer signal square root, scale, then clamp to saturated value.

7.110.1 Detailed Description

Square root of each sample of a signal.

7.110.2 Function Documentation

7.110.2.1 NppStatus nppsSqrt_16s_ISfs (**Npp16s** **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal square root, scale, then clamp to saturated value.

Parameters:

- pSrcDst*** In-Place Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.2 NppStatus nppsSqrt_16s_Sfs (const **Npp16s** **pSrc*, **Npp16s** **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal square root, scale, then clamp to saturated value.

Parameters:

- pSrc*** Source Signal Pointer.

pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.3 NppStatus nppsSqrt_16sc_ISfs (Npp16sc **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit complex signed short signal square root, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.4 NppStatus nppsSqrt_16sc_Sfs (const Npp16sc **pSrc*, Npp16sc **pDst*, int *nLength*, int *nScaleFactor*)

16-bit complex signed short signal square root, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.5 NppStatus nppsSqrt_16u_ISfs (Npp16u **pSrcDst*, int *nLength*, int *nScaleFactor*)

16-bit unsigned short signal square root, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.6 NppStatus nppsSqrt_16u_Sfs (const Npp16u * pSrc, Npp16u * pDst, int nLength, int nScaleFactor)

16-bit unsigned short signal square root, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.7 NppStatus nppsSqrt_32f (const Npp32f * pSrc, Npp32f * pDst, int nLength)

32-bit floating point signal square root.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.8 NppStatus nppsSqrt_32f_I (Npp32f * pSrcDst, int nLength)

32-bit floating point signal square root.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.9 NppStatus nppsSqrt_32fc (const Npp32fc * pSrc, Npp32fc * pDst, int nLength)

32-bit complex floating point signal square root.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.10 NppStatus nppsSqrt_32fc_I (Npp32fc **pSrcDst*, int *nLength*)

32-bit complex floating point signal square root.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.11 NppStatus nppsSqrt_32s16s_Sfs (const Npp32s **pSrc*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer signal square root, scale, then clamp to 16-bit signed integer saturated value.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.12 NppStatus nppsSqrt_64f (const Npp64f **pSrc*, Npp64f **pDst*, int *nLength*)

64-bit floating point signal square root.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.13 NppStatus nppsSqrt_64f_I (Npp64f * pSrcDst, int nLength)

64-bit floating point signal square root.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.14 NppStatus nppsSqrt_64fc (const Npp64fc * pSrc, Npp64fc * pDst, int nLength)

64-bit complex floating point signal square root.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.15 NppStatus nppsSqrt_64fc_I (Npp64fc * pSrcDst, int nLength)

64-bit complex floating point signal square root.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.16 NppStatus nppsSqrt_64s16s_Sfs (const Npp64s * pSrc, Npp16s * pDst, int nLength, int nScaleFactor)

64-bit signed integer signal square root, scale, then clamp to 16-bit signed integer saturated value.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.17 NppStatus nppsSqrt_64s_ISfs (Npp64s * pSrcDst, int nLength, int nScaleFactor)

64-bit signed integer signal square root, scale, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Signal Pointer.
- nLength* Signal Length.
- nScaleFactor* Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.18 NppStatus nppsSqrt_64s_Sfs (const Npp64s * pSrc, Npp64s * pDst, int nLength, int nScaleFactor)

64-bit signed integer signal square root, scale, then clamp to saturated value.

Parameters:

- pSrc* Source Signal Pointer.
- pDst* Destination Signal Pointer.
- nLength* Signal Length.
- nScaleFactor* Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.19 NppStatus nppsSqrt_8u_ISfs (Npp8u * pSrcDst, int nLength, int nScaleFactor)

8-bit unsigned char signal square root, scale, then clamp to saturated value.

Parameters:

- pSrcDst* In-Place Signal Pointer.
- nLength* Signal Length.
- nScaleFactor* Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.110.2.20 NppStatus nppsSqrt_8u_Sfs (const Npp8u * pSrc, Npp8u * pDst, int nLength, int nScaleFactor)

8-bit unsigned char signal square root, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.111 Cubrt

Cube root of each sample of a signal.

Functions

- **NppStatus nppsCubrt_32f (const Npp32f *pSrc, Npp32f *pDst, int nLength)**
32-bit floating point signal cube root.
- **NppStatus nppsCubrt_32s16s_Sfs (const Npp32s *pSrc, Npp16s *pDst, int nLength, int nScaleFactor)**
32-bit signed integer signal cube root, scale, then clamp to 16-bit signed integer saturated value.

7.111.1 Detailed Description

Cube root of each sample of a signal.

7.111.2 Function Documentation

7.111.2.1 NppStatus nppsCubrt_32f (const Npp32f * pSrc, Npp32f * pDst, int nLength)

32-bit floating point signal cube root.

Parameters:

- pSrc* Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.111.2.2 NppStatus nppsCubrt_32s16s_Sfs (const Npp32s * pSrc, Npp16s * pDst, int nLength, int nScaleFactor)

32-bit signed integer signal cube root, scale, then clamp to 16-bit signed integer saturated value.

Parameters:

- pSrc* Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112 Exp

E raised to the power of each sample of a signal.

Functions

- [NppStatus nppsExp_32f \(const Npp32f *pSrc, Npp32f *pDst, int nLength\)](#)
32-bit floating point signal exponent.
- [NppStatus nppsExp_64f \(const Npp64f *pSrc, Npp64f *pDst, int nLength\)](#)
64-bit floating point signal exponent.
- [NppStatus nppsExp_32f64f \(const Npp32f *pSrc, Npp64f *pDst, int nLength\)](#)
32-bit floating point signal exponent with 64-bit floating point result.
- [NppStatus nppsExp_32f_I \(Npp32f *pSrcDst, int nLength\)](#)
32-bit floating point signal exponent.
- [NppStatus nppsExp_64f_I \(Npp64f *pSrcDst, int nLength\)](#)
64-bit floating point signal exponent.
- [NppStatus nppsExp_16s_Sfs \(const Npp16s *pSrc, Npp16s *pDst, int nLength, int nScaleFactor\)](#)
16-bit signed short signal exponent, scale, then clamp to saturated value.
- [NppStatus nppsExp_32s_Sfs \(const Npp32s *pSrc, Npp32s *pDst, int nLength, int nScaleFactor\)](#)
32-bit signed integer signal exponent, scale, then clamp to saturated value.
- [NppStatus nppsExp_64s_Sfs \(const Npp64s *pSrc, Npp64s *pDst, int nLength, int nScaleFactor\)](#)
64-bit signed integer signal exponent, scale, then clamp to saturated value.
- [NppStatus nppsExp_16s_ISfs \(Npp16s *pSrcDst, int nLength, int nScaleFactor\)](#)
16-bit signed short signal exponent, scale, then clamp to saturated value.
- [NppStatus nppsExp_32s_ISfs \(Npp32s *pSrcDst, int nLength, int nScaleFactor\)](#)
32-bit signed integer signal exponent, scale, then clamp to saturated value.
- [NppStatus nppsExp_64s_ISfs \(Npp64s *pSrcDst, int nLength, int nScaleFactor\)](#)
64-bit signed integer signal exponent, scale, then clamp to saturated value.

7.112.1 Detailed Description

E raised to the power of each sample of a signal.

7.112.2 Function Documentation

7.112.2.1 NppStatus nppsExp_16s_ISfs (Npp16s *pSrcDst, int nLength, int nScaleFactor)

16-bit signed short signal exponent, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.2 NppStatus nppsExp_16s_Sfs (const Npp16s **pSrc*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal exponent, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.3 NppStatus nppsExp_32f (const Npp32f **pSrc*, Npp32f **pDst*, int *nLength*)

32-bit floating point signal exponent.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.4 NppStatus nppsExp_32f64f (const Npp32f **pSrc*, Npp64f **pDst*, int *nLength*)

32-bit floating point signal exponent with 64-bit floating point result.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.5 NppStatus nppsExp_32f_I (Npp32f **pSrcDst*, int *nLength*)

32-bit floating point signal exponent.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.6 NppStatus nppsExp_32s_ISfs (Npp32s **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer signal exponent, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.7 NppStatus nppsExp_32s_Sfs (const Npp32s **pSrc*, Npp32s **pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer signal exponent, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.8 NppStatus nppsExp_64f (const Npp64f **pSrc*, Npp64f **pDst*, int *nLength*)

64-bit floating point signal exponent.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.9 NppStatus nppsExp_64f_I (Npp64f * *pSrcDst*, int *nLength*)

64-bit floating point signal exponent.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.10 NppStatus nppsExp_64s_ISfs (Npp64s * *pSrcDst*, int *nLength*, int *nScaleFactor*)

64-bit signed integer signal exponent, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.112.2.11 NppStatus nppsExp_64s_Sfs (const Npp64s * *pSrc*, Npp64s * *pDst*, int *nLength*, int *nScaleFactor*)

64-bit signed integer signal exponent, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.113 Ln

Natural logarithm of each sample of a signal.

Functions

- **NppStatus nppsLn_32f (const Npp32f *pSrc, Npp32f *pDst, int nLength)**
32-bit floating point signal natural logarithm.
- **NppStatus nppsLn_64f (const Npp64f *pSrc, Npp64f *pDst, int nLength)**
64-bit floating point signal natural logarithm.
- **NppStatus nppsLn_64f32f (const Npp64f *pSrc, Npp32f *pDst, int nLength)**
64-bit floating point signal natural logarithm with 32-bit floating point result.
- **NppStatus nppsLn_32f_I (Npp32f *pSrcDst, int nLength)**
32-bit floating point signal natural logarithm.
- **NppStatus nppsLn_64f_I (Npp64f *pSrcDst, int nLength)**
64-bit floating point signal natural logarithm.
- **NppStatus nppsLn_16s_Sfs (const Npp16s *pSrc, Npp16s *pDst, int nLength, int nScaleFactor)**
16-bit signed short signal natural logarithm, scale, then clamp to saturated value.
- **NppStatus nppsLn_32s_Sfs (const Npp32s *pSrc, Npp32s *pDst, int nLength, int nScaleFactor)**
32-bit signed integer signal natural logarithm, scale, then clamp to saturated value.
- **NppStatus nppsLn_32s16s_Sfs (const Npp32s *pSrc, Npp16s *pDst, int nLength, int nScaleFactor)**
32-bit signed integer signal natural logarithm, scale, then clamp to 16-bit signed short saturated value.
- **NppStatus nppsLn_16s_ISfs (Npp16s *pSrcDst, int nLength, int nScaleFactor)**
16-bit signed short signal natural logarithm, scale, then clamp to saturated value.
- **NppStatus nppsLn_32s_ISfs (Npp32s *pSrcDst, int nLength, int nScaleFactor)**
32-bit signed integer signal natural logarithm, scale, then clamp to saturated value.

7.113.1 Detailed Description

Natural logarithm of each sample of a signal.

7.113.2 Function Documentation

7.113.2.1 NppStatus nppsLn_16s_ISfs (Npp16s *pSrcDst, int nLength, int nScaleFactor)

16-bit signed short signal natural logarithm, scale, then clamp to saturated value.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.113.2.2 NppStatus nppsLn_16s_Sfs (const Npp16s * *pSrc*, Npp16s * *pDst*, int *nLength*, int *nScaleFactor*)

16-bit signed short signal natural logarithm, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.
nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.113.2.3 NppStatus nppsLn_32f (const Npp32f * *pSrc*, Npp32f * *pDst*, int *nLength*)

32-bit floating point signal natural logarithm.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.113.2.4 NppStatus nppsLn_32f_I (Npp32f * *pSrcDst*, int *nLength*)

32-bit floating point signal natural logarithm.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.113.2.5 NppStatus nppsLn_32s16s_Sfs (const Npp32s **pSrc*, Npp16s **pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer signal natural logarithm, scale, then clamp to 16-bit signed short saturated value.

Parameters:

- pSrc*** Source Signal Pointer.
- pDst*** Destination Signal Pointer.
- nLength*** Signal Length.
- nScaleFactor*** Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.113.2.6 NppStatus nppsLn_32s_ISfs (Npp32s **pSrcDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer signal natural logarithm, scale, then clamp to saturated value.

Parameters:

- pSrcDst*** In-Place Signal Pointer.
- nLength*** Signal Length.
- nScaleFactor*** Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.113.2.7 NppStatus nppsLn_32s_Sfs (const Npp32s **pSrc*, Npp32s **pDst*, int *nLength*, int *nScaleFactor*)

32-bit signed integer signal natural logarithm, scale, then clamp to saturated value.

Parameters:

- pSrc*** Source Signal Pointer.
- pDst*** Destination Signal Pointer.
- nLength*** Signal Length.
- nScaleFactor*** Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.113.2.8 NppStatus nppsLn_64f (const Npp64f **pSrc*, Npp64f **pDst*, int *nLength*)

64-bit floating point signal natural logarithm.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.113.2.9 NppStatus nppsLn_64f32f (const Npp64f **pSrc*, Npp32f **pDst*, int *nLength*)

64-bit floating point signal natural logarithm with 32-bit floating point result.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.113.2.10 NppStatus nppsLn_64f_I (Npp64f **pSrcDst*, int *nLength*)

64-bit floating point signal natural logarithm.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.114 10Log10

Ten times the decimal logarithm of each sample of a signal.

Functions

- `NppStatus npps10Log10_32s_Sfs (const Npp32s *pSrc, Npp32s *pDst, int nLength, int nScaleFactor)`

32-bit signed integer signal 10 times base 10 logarithm, scale, then clamp to saturated value.

- `NppStatus npps10Log10_32s_ISfs (Npp32s *pSrcDst, int nLength, int nScaleFactor)`

32-bit signed integer signal 10 times base 10 logarithm, scale, then clamp to saturated value.

7.114.1 Detailed Description

Ten times the decimal logarithm of each sample of a signal.

7.114.2 Function Documentation

7.114.2.1 `NppStatus npps10Log10_32s_ISfs (Npp32s *pSrcDst, int nLength, int nScaleFactor)`

32-bit signed integer signal 10 times base 10 logarithm, scale, then clamp to saturated value.

Parameters:

- `pSrcDst` In-Place Signal Pointer.
`nLength` Signal Length.
`nScaleFactor` Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.114.2.2 `NppStatus npps10Log10_32s_Sfs (const Npp32s *pSrc, Npp32s *pDst, int nLength, int nScaleFactor)`

32-bit signed integer signal 10 times base 10 logarithm, scale, then clamp to saturated value.

Parameters:

- `pSrc` Source Signal Pointer.
`pDst` Destination Signal Pointer.
`nLength` Signal Length.
`nScaleFactor` Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.115 SumLn

Sums up the natural logarithm of each sample of a signal.

Functions

- **NppStatus nppsSumLnGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for 32f SumLn.
- **NppStatus nppsSumLn_32f** (const Npp32f *pSrc, int nLength, Npp32f *pDst, Npp8u *pDeviceBuffer)
32-bit floating point signal sum natural logarithm.
- **NppStatus nppsSumLnGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for 64f SumLn.
- **NppStatus nppsSumLn_64f** (const Npp64f *pSrc, int nLength, Npp64f *pDst, Npp8u *pDeviceBuffer)
64-bit floating point signal sum natural logarithm.
- **NppStatus nppsSumLnGetBufferSize_32f64f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for 32f64f SumLn.
- **NppStatus nppsSumLn_32f64f** (const Npp32f *pSrc, int nLength, Npp64f *pDst, Npp8u *pDeviceBuffer)
32-bit floating point input, 64-bit floating point output signal sum natural logarithm.
- **NppStatus nppsSumLnGetBufferSize_16s32f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for 16s32f SumLn.
- **NppStatus nppsSumLn_16s32f** (const Npp16s *pSrc, int nLength, Npp32f *pDst, Npp8u *pDeviceBuffer)
16-bit signed short integer input, 32-bit floating point output signal sum natural logarithm.

7.115.1 Detailed Description

Sums up the natural logarithm of each sample of a signal.

7.115.2 Function Documentation

7.115.2.1 NppStatus nppsSumLn_16s32f (const Npp16s *pSrc, int nLength, Npp32f *pDst, Npp8u *pDeviceBuffer)

16-bit signed short integer input, 32-bit floating point output signal sum natural logarithm.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pDst Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.115.2.2 NppStatus nppsSumLn_32f (const Npp32f **pSrc*, int *nLength*, Npp32f **pDst*, Npp8u **pDeviceBuffer*)

32-bit floating point signal sum natural logarithm.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pDst Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.115.2.3 NppStatus nppsSumLn_32f64f (const Npp32f **pSrc*, int *nLength*, Npp64f **pDst*, Npp8u **pDeviceBuffer*)

32-bit floating point input, 64-bit floating point output signal sum natural logarithm.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pDst Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.115.2.4 NppStatus nppsSumLn_64f (const Npp64f **pSrc*, int *nLength*, Npp64f **pDst*, Npp8u **pDeviceBuffer*)

64-bit floating point signal sum natural logarithm.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pDst Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.115.2.5 NppStatus nppsSumLnGetBufferSize_16s32f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for 16s32f SumLn.

This primitive provides the correct buffer size for nppsSumLn_16s32f.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.115.2.6 NppStatus nppsSumLnGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for 32f SumLn.

This primitive provides the correct buffer size for nppsSumLn_32f.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.115.2.7 NppStatus nppsSumLnGetBufferSize_32f64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for 32f64f SumLn.

This primitive provides the correct buffer size for nppsSumLn_32f64f.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.115.2.8 NppStatus nppsSumLnGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for 64f SumLn.

This primitive provides the correct buffer size for nppsSumLn_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.116 Arctan

Inverse tangent of each sample of a signal.

Functions

- `NppStatus nppsArctan_32f (const Npp32f *pSrc, Npp32f *pDst, int nLength)`
32-bit floating point signal inverse tangent.
- `NppStatus nppsArctan_64f (const Npp64f *pSrc, Npp64f *pDst, int nLength)`
64-bit floating point signal inverse tangent.
- `NppStatus nppsArctan_32f_I (Npp32f *pSrcDst, int nLength)`
32-bit floating point signal inverse tangent.
- `NppStatus nppsArctan_64f_I (Npp64f *pSrcDst, int nLength)`
64-bit floating point signal inverse tangent.

7.116.1 Detailed Description

Inverse tangent of each sample of a signal.

7.116.2 Function Documentation

7.116.2.1 `NppStatus nppsArctan_32f (const Npp32f * pSrc, Npp32f * pDst, int nLength)`

32-bit floating point signal inverse tangent.

Parameters:

- `pSrc` Source Signal Pointer.
`pDst` Destination Signal Pointer.
`nLength` Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.116.2.2 `NppStatus nppsArctan_32f_I (Npp32f * pSrcDst, int nLength)`

32-bit floating point signal inverse tangent.

Parameters:

- `pSrcDst` In-Place Signal Pointer.
`nLength` Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.116.2.3 NppStatus nppsArctan_64f (const Npp64f * pSrc, Npp64f * pDst, int nLength)

64-bit floating point signal inverse tangent.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.116.2.4 NppStatus nppsArctan_64f_I (Npp64f * pSrcDst, int nLength)

64-bit floating point signal inverse tangent.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.117 Normalize

Normalize each sample of a real or complex signal using offset and division operations.

Functions

- `NppStatus nppsNormalize_32f (const Npp32f *pSrc, Npp32f *pDst, int nLength, Npp32f vSub, Npp32f vDiv)`
32-bit floating point signal normalize.
- `NppStatus nppsNormalize_32fc (const Npp32fc *pSrc, Npp32fc *pDst, int nLength, Npp32fc vSub, Npp32fc vDiv)`
32-bit complex floating point signal normalize.
- `NppStatus nppsNormalize_64f (const Npp64f *pSrc, Npp64f *pDst, int nLength, Npp64f vSub, Npp64f vDiv)`
64-bit floating point signal normalize.
- `NppStatus nppsNormalize_64fc (const Npp64fc *pSrc, Npp64fc *pDst, int nLength, Npp64fc vSub, Npp64fc vDiv)`
64-bit complex floating point signal normalize.
- `NppStatus nppsNormalize_16s_Sfs (const Npp16s *pSrc, Npp16s *pDst, int nLength, Npp16s vSub, int vDiv, int nScaleFactor)`
16-bit signed short signal normalize, scale, then clamp to saturated value.
- `NppStatus nppsNormalize_16sc_Sfs (const Npp16sc *pSrc, Npp16sc *pDst, int nLength, Npp16sc vSub, int vDiv, int nScaleFactor)`
16-bit complex signed short signal normalize, scale, then clamp to saturated value.

7.117.1 Detailed Description

Normalize each sample of a real or complex signal using offset and division operations.

7.117.2 Function Documentation

7.117.2.1 `NppStatus nppsNormalize_16s_Sfs (const Npp16s * pSrc, Npp16s * pDst, int nLength, Npp16s vSub, int vDiv, int nScaleFactor)`

16-bit signed short signal normalize, scale, then clamp to saturated value.

Parameters:

`pSrc` Source Signal Pointer.

`pDst` Destination Signal Pointer.

`nLength` Signal Length.

`vSub` value subtracted from each signal element before division

`vDiv` divisor of post-subtracted signal element dividend

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.117.2.2 NppStatus nppsNormalize_16sc_Sfs (const Npp16sc * pSrc, Npp16sc * pDst, int nLength, Npp16sc vSub, int vDiv, int nScaleFactor)

16-bit complex signed short signal normalize, scale, then clamp to saturated value.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

vSub value subtracted from each signal element before division

vDiv divisor of post-subtracted signal element dividend

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.117.2.3 NppStatus nppsNormalize_32f (const Npp32f * pSrc, Npp32f * pDst, int nLength, Npp32f vSub, Npp32f vDiv)

32-bit floating point signal normalize.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

vSub value subtracted from each signal element before division

vDiv divisor of post-subtracted signal element dividend

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.117.2.4 NppStatus nppsNormalize_32fc (const Npp32fc * pSrc, Npp32fc * pDst, int nLength, Npp32fc vSub, Npp32fc vDiv)

32-bit complex floating point signal normalize.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

vSub value subtracted from each signal element before division

vDiv divisor of post-subtracted signal element dividend

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.117.2.5 NppStatus nppsNormalize_64f (const Npp64f * *pSrc*, Npp64f * *pDst*, int *nLength*, Npp64f *vSub*, Npp64f *vDiv*)

64-bit floating point signal normalize.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

vSub value subtracted from each signal element before division

vDiv divisor of post-subtracted signal element dividend

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.117.2.6 NppStatus nppsNormalize_64fc (const Npp64fc * *pSrc*, Npp64fc * *pDst*, int *nLength*, Npp64fc *vSub*, Npp64f *vDiv*)

64-bit complex floating point signal normalize.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

vSub value subtracted from each signal element before division

vDiv divisor of post-subtracted signal element dividend

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.118 Cauchy, CauchyD, and CauchyDD2

Determine Cauchy robust error function and its first and second derivatives for each sample of a signal.

Functions

- [NppStatus nppsCauchy_32f_I \(Npp32f *pSrcDst, int nLength, Npp32f nParam\)](#)
32-bit floating point signal Cauchy error calculation.
- [NppStatus nppsCauchyD_32f_I \(Npp32f *pSrcDst, int nLength, Npp32f nParam\)](#)
32-bit floating point signal Cauchy first derivative.
- [NppStatus nppsCauchyDD2_32f_I \(Npp32f *pSrcDst, Npp32f *pD2FVal, int nLength, Npp32f nParam\)](#)
32-bit floating point signal Cauchy first and second derivatives.

7.118.1 Detailed Description

Determine Cauchy robust error function and its first and second derivatives for each sample of a signal.

7.118.2 Function Documentation

7.118.2.1 NppStatus nppsCauchy_32f_I (Npp32f * pSrcDst, int nLength, Npp32f nParam)

32-bit floating point signal Cauchy error calculation.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.
nParam constant used in Cauchy formula

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.118.2.2 NppStatus nppsCauchyD_32f_I (Npp32f * pSrcDst, int nLength, Npp32f nParam)

32-bit floating point signal Cauchy first derivative.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.
nParam constant used in Cauchy formula

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.118.2.3 NppStatus nppsCauchyDD2_32f_I (Npp32f * pSrcDst, Npp32f * pD2FVal, int nLength, Npp32f nParam)

32-bit floating point signal Cauchy first and second derivatives.

Parameters:

pSrcDst In-Place Signal Pointer.

pD2FVal Source Signal Pointer. This signal contains the second derivative of the source signal.

nLength Signal Length.

nParam constant used in Cauchy formula

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.119 Logical And Shift Operations

Modules

- [AndC](#)

Bitwise AND of a constant and each sample of a signal.

- [And](#)

Sample by sample bitwise AND of samples from two signals.

- [OrC](#)

Bitwise OR of a constant and each sample of a signal.

- [Or](#)

Sample by sample bitwise OR of the samples from two signals.

- [XorC](#)

Bitwise XOR of a constant and each sample of a signal.

- [Xor](#)

Sample by sample bitwise XOR of the samples from two signals.

- [Not](#)

Bitwise NOT of each sample of a signal.

- [LShiftC](#)

Left shifts the bits of each sample of a signal by a constant amount.

- [RShiftC](#)

Right shifts the bits of each sample of a signal by a constant amount.

7.120 AndC

Bitwise AND of a constant and each sample of a signal.

Functions

- `NppStatus nppsAndC_8u (const Npp8u *pSrc, Npp8u nValue, Npp8u *pDst, int nLength)`
8-bit unsigned char signal and with constant.
- `NppStatus nppsAndC_16u (const Npp16u *pSrc, Npp16u nValue, Npp16u *pDst, int nLength)`
16-bit unsigned short signal and with constant.
- `NppStatus nppsAndC_32u (const Npp32u *pSrc, Npp32u nValue, Npp32u *pDst, int nLength)`
32-bit unsigned integer signal and with constant.
- `NppStatus nppsAndC_8u_I (Npp8u nValue, Npp8u *pSrcDst, int nLength)`
8-bit unsigned char in place signal and with constant.
- `NppStatus nppsAndC_16u_I (Npp16u nValue, Npp16u *pSrcDst, int nLength)`
16-bit unsigned short in place signal and with constant.
- `NppStatus nppsAndC_32u_I (Npp32u nValue, Npp32u *pSrcDst, int nLength)`
32-bit unsigned signed integer in place signal and with constant.

7.120.1 Detailed Description

Bitwise AND of a constant and each sample of a signal.

7.120.2 Function Documentation

7.120.2.1 `NppStatus nppsAndC_16u (const Npp16u *pSrc, Npp16u nValue, Npp16u *pDst, int nLength)`

16-bit unsigned short signal and with constant.

Parameters:

`pSrc` Source Signal Pointer.

`nValue` Constant value to be anded with each vector element

`pDst` Destination Signal Pointer.

`nLength` Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.120.2.2 NppStatus nppsAndC_16u_I (Npp16u *nValue*, Npp16u * *pSrcDst*, int *nLength*)

16-bit unsigned short in place signal and with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be anded with each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.120.2.3 NppStatus nppsAndC_32u (const Npp32u * *pSrc*, Npp32u *nValue*, Npp32u * *pDst*, int *nLength*)

32-bit unsigned integer signal and with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be anded with each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.120.2.4 NppStatus nppsAndC_32u_I (Npp32u *nValue*, Npp32u * *pSrcDst*, int *nLength*)

32-bit unsigned signed integer in place signal and with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be anded with each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.120.2.5 NppStatus nppsAndC_8u (const Npp8u * *pSrc*, Npp8u *nValue*, Npp8u * *pDst*, int *nLength*)

8-bit unsigned char signal and with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be added with each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.120.2.6 NppStatus nppsAndC_8u_I (Npp8u *nValue*, Npp8u **pSrcDst*, int *nLength*)

8-bit unsigned char in place signal and with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be added with each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.121 And

Sample by sample bitwise AND of samples from two signals.

Functions

- **NppStatus nppsAnd_8u (const Npp8u *pSrc1, const Npp8u *pSrc2, Npp8u *pDst, int nLength)**
8-bit unsigned char signal and with signal.
- **NppStatus nppsAnd_16u (const Npp16u *pSrc1, const Npp16u *pSrc2, Npp16u *pDst, int nLength)**
16-bit unsigned short signal and with signal.
- **NppStatus nppsAnd_32u (const Npp32u *pSrc1, const Npp32u *pSrc2, Npp32u *pDst, int nLength)**
32-bit unsigned integer signal and with signal.
- **NppStatus nppsAnd_8u_I (const Npp8u *pSrc, Npp8u *pSrcDst, int nLength)**
8-bit unsigned char in place signal and with signal.
- **NppStatus nppsAnd_16u_I (const Npp16u *pSrc, Npp16u *pSrcDst, int nLength)**
16-bit unsigned short in place signal and with signal.
- **NppStatus nppsAnd_32u_I (const Npp32u *pSrc, Npp32u *pSrcDst, int nLength)**
32-bit unsigned integer in place signal and with signal.

7.121.1 Detailed Description

Sample by sample bitwise AND of samples from two signals.

7.121.2 Function Documentation

7.121.2.1 NppStatus nppsAnd_16u (const Npp16u *pSrc1, const Npp16u *pSrc2, Npp16u *pDst, int nLength)

16-bit unsigned short signal and with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be anded with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.121.2.2 NppStatus nppsAnd_16u_I (const Npp16u * pSrc, Npp16u * pSrcDst, int nLength)

16-bit unsigned short in place signal and with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be anded with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.121.2.3 NppStatus nppsAnd_32u (const Npp32u * pSrc1, const Npp32u * pSrc2, Npp32u * pDst, int nLength)

32-bit unsigned integer signal and with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be anded with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.121.2.4 NppStatus nppsAnd_32u_I (const Npp32u * pSrc, Npp32u * pSrcDst, int nLength)

32-bit unsigned integer in place signal and with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be anded with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.121.2.5 NppStatus nppsAnd_8u (const Npp8u * pSrc1, const Npp8u * pSrc2, Npp8u * pDst, int nLength)

8-bit unsigned char signal and with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be anded with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.121.2.6 NppStatus nppsAnd_8u_I (const Npp8u **pSrc*, Npp8u **pSrcDst*, int *nLength*)

8-bit unsigned char in place signal and with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be anded with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.122 OrC

Bitwise OR of a constant and each sample of a signal.

Functions

- `NppStatus nppsOrC_8u (const Npp8u *pSrc, Npp8u nValue, Npp8u *pDst, int nLength)`
8-bit unsigned char signal or with constant.
- `NppStatus nppsOrC_16u (const Npp16u *pSrc, Npp16u nValue, Npp16u *pDst, int nLength)`
16-bit unsigned short signal or with constant.
- `NppStatus nppsOrC_32u (const Npp32u *pSrc, Npp32u nValue, Npp32u *pDst, int nLength)`
32-bit unsigned integer signal or with constant.
- `NppStatus nppsOrC_8u_I (Npp8u nValue, Npp8u *pSrcDst, int nLength)`
8-bit unsigned char in place signal or with constant.
- `NppStatus nppsOrC_16u_I (Npp16u nValue, Npp16u *pSrcDst, int nLength)`
16-bit unsigned short in place signal or with constant.
- `NppStatus nppsOrC_32u_I (Npp32u nValue, Npp32u *pSrcDst, int nLength)`
32-bit unsigned signed integer in place signal or with constant.

7.122.1 Detailed Description

Bitwise OR of a constant and each sample of a signal.

7.122.2 Function Documentation

7.122.2.1 `NppStatus nppsOrC_16u (const Npp16u *pSrc, Npp16u nValue, Npp16u *pDst, int nLength)`

16-bit unsigned short signal or with constant.

Parameters:

`pSrc` Source Signal Pointer.

`nValue` Constant value to be ored with each vector element

`pDst` Destination Signal Pointer.

`nLength` Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.122.2.2 NppStatus nppsOrC_16u_I (Npp16u *nValue*, Npp16u **pSrcDst*, int *nLength*)

16-bit unsigned short in place signal or with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be ored with each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.122.2.3 NppStatus nppsOrC_32u (const Npp32u **pSrc*, Npp32u *nValue*, Npp32u **pDst*, int *nLength*)

32-bit unsigned integer signal or with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be ored with each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.122.2.4 NppStatus nppsOrC_32u_I (Npp32u *nValue*, Npp32u **pSrcDst*, int *nLength*)

32-bit unsigned signed integer in place signal or with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be ored with each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.122.2.5 NppStatus nppsOrC_8u (const Npp8u **pSrc*, Npp8u *nValue*, Npp8u **pDst*, int *nLength*)

8-bit unsigned char signal or with constant.

Parameters:

pSrc Source Signal Pointer.
nValue Constant value to be ored with each vector element
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.122.2.6 NppStatus nppsOrC_8u_I (Npp8u *nValue*, Npp8u **pSrcDst*, int *nLength*)

8-bit unsigned char in place signal or with constant.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be ored with each vector element
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.123 Or

Sample by sample bitwise OR of the samples from two signals.

Functions

- **NppStatus nppsOr_8u** (const **Npp8u** **pSrc1*, const **Npp8u** **pSrc2*, **Npp8u** **pDst*, int *nLength*)
8-bit unsigned char signal or with signal.
- **NppStatus nppsOr_16u** (const **Npp16u** **pSrc1*, const **Npp16u** **pSrc2*, **Npp16u** **pDst*, int *nLength*)
16-bit unsigned short signal or with signal.
- **NppStatus nppsOr_32u** (const **Npp32u** **pSrc1*, const **Npp32u** **pSrc2*, **Npp32u** **pDst*, int *nLength*)
32-bit unsigned integer signal or with signal.
- **NppStatus nppsOr_8u_I** (const **Npp8u** **pSrc*, **Npp8u** **pSrcDst*, int *nLength*)
8-bit unsigned char in place signal or with signal.
- **NppStatus nppsOr_16u_I** (const **Npp16u** **pSrc*, **Npp16u** **pSrcDst*, int *nLength*)
16-bit unsigned short in place signal or with signal.
- **NppStatus nppsOr_32u_I** (const **Npp32u** **pSrc*, **Npp32u** **pSrcDst*, int *nLength*)
32-bit unsigned integer in place signal or with signal.

7.123.1 Detailed Description

Sample by sample bitwise OR of the samples from two signals.

7.123.2 Function Documentation

7.123.2.1 NppStatus nppsOr_16u (const Npp16u **pSrc1*, const Npp16u **pSrc2*, Npp16u **pDst*, int *nLength*)

16-bit unsigned short signal or with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be ored with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.123.2.2 NppStatus nppsOr_16u_I (const Npp16u * pSrc, Npp16u * pSrcDst, int nLength)

16-bit unsigned short in place signal or with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be ored with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.123.2.3 NppStatus nppsOr_32u (const Npp32u * pSrc1, const Npp32u * pSrc2, Npp32u * pDst, int nLength)

32-bit unsigned integer signal or with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be ored with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.123.2.4 NppStatus nppsOr_32u_I (const Npp32u * pSrc, Npp32u * pSrcDst, int nLength)

32-bit unsigned integer in place signal or with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be ored with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.123.2.5 NppStatus nppsOr_8u (const Npp8u * pSrc1, const Npp8u * pSrc2, Npp8u * pDst, int nLength)

8-bit unsigned char signal or with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be ored with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.123.2.6 NppStatus nppsOr_8u_I (const Npp8u **pSrc*, Npp8u **pSrcDst*, int *nLength*)

8-bit unsigned char in place signal or with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be ored with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.124 XorC

Bitwise XOR of a constant and each sample of a signal.

Functions

- `NppStatus nppsXorC_8u (const Npp8u *pSrc, Npp8u nValue, Npp8u *pDst, int nLength)`
8-bit unsigned char signal exclusive or with constant.
- `NppStatus nppsXorC_16u (const Npp16u *pSrc, Npp16u nValue, Npp16u *pDst, int nLength)`
16-bit unsigned short signal exclusive or with constant.
- `NppStatus nppsXorC_32u (const Npp32u *pSrc, Npp32u nValue, Npp32u *pDst, int nLength)`
32-bit unsigned integer signal exclusive or with constant.
- `NppStatus nppsXorC_8u_I (Npp8u nValue, Npp8u *pSrcDst, int nLength)`
8-bit unsigned char in place signal exclusive or with constant.
- `NppStatus nppsXorC_16u_I (Npp16u nValue, Npp16u *pSrcDst, int nLength)`
16-bit unsigned short in place signal exclusive or with constant.
- `NppStatus nppsXorC_32u_I (Npp32u nValue, Npp32u *pSrcDst, int nLength)`
32-bit unsigned signed integer in place signal exclusive or with constant.

7.124.1 Detailed Description

Bitwise XOR of a constant and each sample of a signal.

7.124.2 Function Documentation

7.124.2.1 `NppStatus nppsXorC_16u (const Npp16u * pSrc, Npp16u nValue, Npp16u * pDst, int nLength)`

16-bit unsigned short signal exclusive or with constant.

Parameters:

`pSrc` Source Signal Pointer.

`nValue` Constant value to be exclusive ored with each vector element

`pDst` Destination Signal Pointer.

`nLength` Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.124.2.2 NppStatus nppsXorC_16u_I (Npp16u *nValue*, Npp16u **pSrcDst*, int *nLength*)

16-bit unsigned short in place signal exclusive or with constant.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be exclusive ored with each vector element
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.124.2.3 NppStatus nppsXorC_32u (const Npp32u **pSrc*, Npp32u *nValue*, Npp32u **pDst*, int *nLength*)

32-bit unsigned integer signal exclusive or with constant.

Parameters:

pSrc Source Signal Pointer.
nValue Constant value to be exclusive ored with each vector element
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.124.2.4 NppStatus nppsXorC_32u_I (Npp32u *nValue*, Npp32u **pSrcDst*, int *nLength*)

32-bit unsigned signed integer in place signal exclusive or with constant.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be exclusive ored with each vector element
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.124.2.5 NppStatus nppsXorC_8u (const Npp8u **pSrc*, Npp8u *nValue*, Npp8u **pDst*, int *nLength*)

8-bit unsigned char signal exclusive or with constant.

Parameters:

pSrc Source Signal Pointer.
nValue Constant value to be exclusive ored with each vector element
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.124.2.6 NppStatus nppsXorC_8u_I (Npp8u *nValue*, Npp8u **pSrcDst*, int *nLength*)

8-bit unsigned char in place signal exclusive or with constant.

Parameters:

pSrcDst In-Place Signal Pointer.
nValue Constant value to be exclusive ored with each vector element
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.125 Xor

Sample by sample bitwise XOR of the samples from two signals.

Functions

- **NppStatus nppsXor_8u (const Npp8u *pSrc1, const Npp8u *pSrc2, Npp8u *pDst, int nLength)**
8-bit unsigned char signal exclusive or with signal.
- **NppStatus nppsXor_16u (const Npp16u *pSrc1, const Npp16u *pSrc2, Npp16u *pDst, int nLength)**
16-bit unsigned short signal exclusive or with signal.
- **NppStatus nppsXor_32u (const Npp32u *pSrc1, const Npp32u *pSrc2, Npp32u *pDst, int nLength)**
32-bit unsigned integer signal exclusive or with signal.
- **NppStatus nppsXor_8u_I (const Npp8u *pSrc, Npp8u *pSrcDst, int nLength)**
8-bit unsigned char in place signal exclusive or with signal.
- **NppStatus nppsXor_16u_I (const Npp16u *pSrc, Npp16u *pSrcDst, int nLength)**
16-bit unsigned short in place signal exclusive or with signal.
- **NppStatus nppsXor_32u_I (const Npp32u *pSrc, Npp32u *pSrcDst, int nLength)**
32-bit unsigned integer in place signal exclusive or with signal.

7.125.1 Detailed Description

Sample by sample bitwise XOR of the samples from two signals.

7.125.2 Function Documentation

7.125.2.1 NppStatus nppsXor_16u (const Npp16u * pSrc1, const Npp16u * pSrc2, Npp16u * pDst, int nLength)

16-bit unsigned short signal exclusive or with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be exclusive ored with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.125.2.2 NppStatus nppsXor_16u_I (const Npp16u * pSrc, Npp16u * pSrcDst, int nLength)

16-bit unsigned short in place signal exclusive or with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be exclusive ored with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.125.2.3 NppStatus nppsXor_32u (const Npp32u * pSrc1, const Npp32u * pSrc2, Npp32u * pDst, int nLength)

32-bit unsigned integer signal exclusive or with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be exclusive ored with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.125.2.4 NppStatus nppsXor_32u_I (const Npp32u * pSrc, Npp32u * pSrcDst, int nLength)

32-bit unsigned integer in place signal exclusive or with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be exclusive ored with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.125.2.5 NppStatus nppsXor_8u (const Npp8u * pSrc1, const Npp8u * pSrc2, Npp8u * pDst, int nLength)

8-bit unsigned char signal exclusive or with signal.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer. signal2 elements to be exclusive ored with signal1 elements

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.125.2.6 NppStatus nppsXor_8u_I (const Npp8u **pSrc*, Npp8u **pSrcDst*, int *nLength*)

8-bit unsigned char in place signal exclusive or with signal.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer. signal2 elements to be exclusive ored with signal1 elements

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.126 Not

Bitwise NOT of each sample of a signal.

Functions

- **NppStatus nppsNot_8u (const Npp8u *pSrc, Npp8u *pDst, int nLength)**
8-bit unsigned char not signal.
- **NppStatus nppsNot_16u (const Npp16u *pSrc, Npp16u *pDst, int nLength)**
16-bit unsigned short not signal.
- **NppStatus nppsNot_32u (const Npp32u *pSrc, Npp32u *pDst, int nLength)**
32-bit unsigned integer not signal.
- **NppStatus nppsNot_8u_I (Npp8u *pSrcDst, int nLength)**
8-bit unsigned char in place not signal.
- **NppStatus nppsNot_16u_I (Npp16u *pSrcDst, int nLength)**
16-bit unsigned short in place not signal.
- **NppStatus nppsNot_32u_I (Npp32u *pSrcDst, int nLength)**
32-bit unsigned signed integer in place not signal.

7.126.1 Detailed Description

Bitwise NOT of each sample of a signal.

7.126.2 Function Documentation

7.126.2.1 NppStatus nppsNot_16u (const Npp16u * pSrc, Npp16u * pDst, int nLength)

16-bit unsigned short not signal.

Parameters:

- pSrc** Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.126.2.2 NppStatus nppsNot_16u_I (Npp16u **pSrcDst*, int *nLength*)

16-bit unsigned short in place not signal.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.126.2.3 NppStatus nppsNot_32u (const Npp32u **pSrc*, Npp32u **pDst*, int *nLength*)

32-bit unsigned integer not signal.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.126.2.4 NppStatus nppsNot_32u_I (Npp32u **pSrcDst*, int *nLength*)

32-bit unsigned signed integer in place not signal.

Parameters:

pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.126.2.5 NppStatus nppsNot_8u (const Npp8u **pSrc*, Npp8u **pDst*, int *nLength*)

8-bit unsigned char not signal.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.126.2.6 NppStatus nppsNot_8u_I (Npp8u **pSrcDst*, int *nLength*)

8-bit unsigned char in place not signal.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.127 LShiftC

Left shifts the bits of each sample of a signal by a constant amount.

Functions

- **NppStatus nppsLShiftC_8u** (const **Npp8u** *pSrc, int nValue, **Npp8u** *pDst, int nLength)
8-bit unsigned char signal left shift with constant.
- **NppStatus nppsLShiftC_16u** (const **Npp16u** *pSrc, int nValue, **Npp16u** *pDst, int nLength)
16-bit unsigned short signal left shift with constant.
- **NppStatus nppsLShiftC_16s** (const **Npp16s** *pSrc, int nValue, **Npp16s** *pDst, int nLength)
16-bit signed short signal left shift with constant.
- **NppStatus nppsLShiftC_32u** (const **Npp32u** *pSrc, int nValue, **Npp32u** *pDst, int nLength)
32-bit unsigned integer signal left shift with constant.
- **NppStatus nppsLShiftC_32s** (const **Npp32s** *pSrc, int nValue, **Npp32s** *pDst, int nLength)
32-bit signed integer signal left shift with constant.
- **NppStatus nppsLShiftC_8u_I** (int nValue, **Npp8u** *pSrcDst, int nLength)
8-bit unsigned char in place signal left shift with constant.
- **NppStatus nppsLShiftC_16u_I** (int nValue, **Npp16u** *pSrcDst, int nLength)
16-bit unsigned short in place signal left shift with constant.
- **NppStatus nppsLShiftC_16s_I** (int nValue, **Npp16s** *pSrcDst, int nLength)
16-bit signed short in place signal left shift with constant.
- **NppStatus nppsLShiftC_32u_I** (int nValue, **Npp32u** *pSrcDst, int nLength)
32-bit unsigned signed integer in place signal left shift with constant.
- **NppStatus nppsLShiftC_32s_I** (int nValue, **Npp32s** *pSrcDst, int nLength)
32-bit signed signed integer in place signal left shift with constant.

7.127.1 Detailed Description

Left shifts the bits of each sample of a signal by a constant amount.

7.127.2 Function Documentation

7.127.2.1 NppStatus nppsLShiftC_16s (const Npp16s * pSrc, int nValue, Npp16s * pDst, int nLength)

16-bit signed short signal left shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to left shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.127.2.2 NppStatus nppsLShiftC_16s_I (int *nValue*, Npp16s **pSrcDst*, int *nLength*)

16-bit signed short in place signal left shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to left shift each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.127.2.3 NppStatus nppsLShiftC_16u (const Npp16u **pSrc*, int *nValue*, Npp16u **pDst*, int *nLength*)

16-bit unsigned short signal left shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to left shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.127.2.4 NppStatus nppsLShiftC_16u_I (int *nValue*, Npp16u **pSrcDst*, int *nLength*)

16-bit unsigned short in place signal left shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to left shift each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.127.2.5 NppStatus nppsLShiftC_32s (const Npp32s **pSrc*, int *nValue*, Npp32s **pDst*, int *nLength*)

32-bit signed integer signal left shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to left shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.127.2.6 NppStatus nppsLShiftC_32s_I (int *nValue*, Npp32s **pSrcDst*, int *nLength*)

32-bit signed signed integer in place signal left shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to left shift each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.127.2.7 NppStatus nppsLShiftC_32u (const Npp32u **pSrc*, int *nValue*, Npp32u **pDst*, int *nLength*)

32-bit unsigned integer signal left shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to left shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.127.2.8 NppStatus nppsLShiftC_32u_I (int *nValue*, Npp32u * *pSrcDst*, int *nLength*)

32-bit unsigned signed integer in place signal left shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to left shift each vector element

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.127.2.9 NppStatus nppsLShiftC_8u (const Npp8u * *pSrc*, int *nValue*, Npp8u * *pDst*, int *nLength*)

8-bit unsigned char signal left shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to left shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.127.2.10 NppStatus nppsLShiftC_8u_I (int *nValue*, Npp8u * *pSrcDst*, int *nLength*)

8-bit unsigned char in place signal left shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to left shift each vector element

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.128 RShiftC

Right shifts the bits of each sample of a signal by a constant amount.

Functions

- [NppStatus nppsRShiftC_8u](#) (const [Npp8u](#) *pSrc, int nValue, [Npp8u](#) *pDst, int nLength)
8-bit unsigned char signal right shift with constant.
- [NppStatus nppsRShiftC_16u](#) (const [Npp16u](#) *pSrc, int nValue, [Npp16u](#) *pDst, int nLength)
16-bit unsigned short signal right shift with constant.
- [NppStatus nppsRShiftC_16s](#) (const [Npp16s](#) *pSrc, int nValue, [Npp16s](#) *pDst, int nLength)
16-bit signed short signal right shift with constant.
- [NppStatus nppsRShiftC_32u](#) (const [Npp32u](#) *pSrc, int nValue, [Npp32u](#) *pDst, int nLength)
32-bit unsigned integer signal right shift with constant.
- [NppStatus nppsRShiftC_32s](#) (const [Npp32s](#) *pSrc, int nValue, [Npp32s](#) *pDst, int nLength)
32-bit signed integer signal right shift with constant.
- [NppStatus nppsRShiftC_8u_I](#) (int nValue, [Npp8u](#) *pSrcDst, int nLength)
8-bit unsigned char in place signal right shift with constant.
- [NppStatus nppsRShiftC_16u_I](#) (int nValue, [Npp16u](#) *pSrcDst, int nLength)
16-bit unsigned short in place signal right shift with constant.
- [NppStatus nppsRShiftC_16s_I](#) (int nValue, [Npp16s](#) *pSrcDst, int nLength)
16-bit signed short in place signal right shift with constant.
- [NppStatus nppsRShiftC_32u_I](#) (int nValue, [Npp32u](#) *pSrcDst, int nLength)
32-bit unsigned signed integer in place signal right shift with constant.
- [NppStatus nppsRShiftC_32s_I](#) (int nValue, [Npp32s](#) *pSrcDst, int nLength)
32-bit signed signed integer in place signal right shift with constant.

7.128.1 Detailed Description

Right shifts the bits of each sample of a signal by a constant amount.

7.128.2 Function Documentation

7.128.2.1 [NppStatus nppsRShiftC_16s](#) (const [Npp16s](#) *pSrc, int nValue, [Npp16s](#) *pDst, int nLength)

16-bit signed short signal right shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to right shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.128.2.2 NppStatus nppsRShiftC_16s_I (int *nValue*, Npp16s **pSrcDst*, int *nLength*)

16-bit signed short in place signal right shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to right shift each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.128.2.3 NppStatus nppsRShiftC_16u (const Npp16u **pSrc*, int *nValue*, Npp16u **pDst*, int *nLength*)

16-bit unsigned short signal right shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to right shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.128.2.4 NppStatus nppsRShiftC_16u_I (int *nValue*, Npp16u **pSrcDst*, int *nLength*)

16-bit unsigned short in place signal right shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to right shift each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.128.2.5 NppStatus nppsRShiftC_32s (const Npp32s * *pSrc*, int *nValue*, Npp32s * *pDst*, int *nLength*)

32-bit signed integer signal right shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to right shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.128.2.6 NppStatus nppsRShiftC_32s_I (int *nValue*, Npp32s * *pSrcDst*, int *nLength*)

32-bit signed signed integer in place signal right shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to right shift each vector element

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.128.2.7 NppStatus nppsRShiftC_32u (const Npp32u * *pSrc*, int *nValue*, Npp32u * *pDst*, int *nLength*)

32-bit unsigned integer signal right shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to right shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.128.2.8 NppStatus nppsRShiftC_32u_I (int *nValue*, Npp32u * *pSrcDst*, int *nLength*)

32-bit unsigned signed integer in place signal right shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to right shift each vector element

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.128.2.9 NppStatus nppsRShiftC_8u (const Npp8u * *pSrc*, int *nValue*, Npp8u * *pDst*, int *nLength*)

8-bit unsigned char signal right shift with constant.

Parameters:

pSrc Source Signal Pointer.

nValue Constant value to be used to right shift each vector element

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.128.2.10 NppStatus nppsRShiftC_8u_I (int *nValue*, Npp8u * *pSrcDst*, int *nLength*)

8-bit unsigned char in place signal right shift with constant.

Parameters:

pSrcDst In-Place Signal Pointer.

nValue Constant value to be used to right shift each vector element

nLength Signal Length.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.129 Conversion Functions

Modules

- [Convert](#)
- [Threshold](#)

7.130 Convert

Convert

Routines for converting the sample-data type of signals.

- `NppStatus nppsConvert_8s16s (const Npp8s *pSrc, Npp16s *pDst, int nLength)`
- `NppStatus nppsConvert_8s32f (const Npp8s *pSrc, Npp32f *pDst, int nLength)`
- `NppStatus nppsConvert_8u32f (const Npp8u *pSrc, Npp32f *pDst, int nLength)`
- `NppStatus nppsConvert_16s8s_Sfs (const Npp16s *pSrc, Npp8s *pDst, Npp32u nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_16s32s (const Npp16s *pSrc, Npp32s *pDst, int nLength)`
- `NppStatus nppsConvert_16s32f (const Npp16s *pSrc, Npp32f *pDst, int nLength)`
- `NppStatus nppsConvert_16u32f (const Npp16u *pSrc, Npp32f *pDst, int nLength)`
- `NppStatus nppsConvert_32s16s (const Npp32s *pSrc, Npp16s *pDst, int nLength)`
- `NppStatus nppsConvert_32s32f (const Npp32s *pSrc, Npp32f *pDst, int nLength)`
- `NppStatus nppsConvert_32s64f (const Npp32s *pSrc, Npp64f *pDst, int nLength)`
- `NppStatus nppsConvert_32f64f (const Npp32f *pSrc, Npp64f *pDst, int nLength)`
- `NppStatus nppsConvert_64s64f (const Npp64s *pSrc, Npp64f *pDst, int nLength)`
- `NppStatus nppsConvert_64f32f (const Npp64f *pSrc, Npp32f *pDst, int nLength)`
- `NppStatus nppsConvert_16s32f_Sfs (const Npp16s *pSrc, Npp32f *pDst, int nLength, int nScaleFactor)`
- `NppStatus nppsConvert_16s64f_Sfs (const Npp16s *pSrc, Npp64f *pDst, int nLength, int nScaleFactor)`
- `NppStatus nppsConvert_32s16s_Sfs (const Npp32s *pSrc, Npp16s *pDst, int nLength, int nScaleFactor)`
- `NppStatus nppsConvert_32s32f_Sfs (const Npp32s *pSrc, Npp32f *pDst, int nLength, int nScaleFactor)`
- `NppStatus nppsConvert_32s64f_Sfs (const Npp32s *pSrc, Npp64f *pDst, int nLength, int nScaleFactor)`
- `NppStatus nppsConvert_32f8s_Sfs (const Npp32f *pSrc, Npp8s *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_32f8u_Sfs (const Npp32f *pSrc, Npp8u *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_32f16s_Sfs (const Npp32f *pSrc, Npp16s *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_32f16u_Sfs (const Npp32f *pSrc, Npp16u *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_32f32s_Sfs (const Npp32f *pSrc, Npp32s *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_64s32s_Sfs (const Npp64s *pSrc, Npp32s *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_64f16s_Sfs (const Npp64f *pSrc, Npp16s *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_64f32s_Sfs (const Npp64f *pSrc, Npp32s *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`
- `NppStatus nppsConvert_64f64s_Sfs (const Npp64f *pSrc, Npp64s *pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)`

7.130.1 Function Documentation

- 7.130.1.1 **NppStatus nppsConvert_16s32f (const Npp16s * pSrc, Npp32f * pDst, int nLength)**
- 7.130.1.2 **NppStatus nppsConvert_16s32f_Sfs (const Npp16s * pSrc, Npp32f * pDst, int nLength, int nScaleFactor)**
- 7.130.1.3 **NppStatus nppsConvert_16s32s (const Npp16s * pSrc, Npp32s * pDst, int nLength)**
- 7.130.1.4 **NppStatus nppsConvert_16s64f_Sfs (const Npp16s * pSrc, Npp64f * pDst, int nLength, int nScaleFactor)**
- 7.130.1.5 **NppStatus nppsConvert_16s8s_Sfs (const Npp16s * pSrc, Npp8s * pDst, Npp32u nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.6 **NppStatus nppsConvert_16u32f (const Npp16u * pSrc, Npp32f * pDst, int nLength)**
- 7.130.1.7 **NppStatus nppsConvert_32f16s_Sfs (const Npp32f * pSrc, Npp16s * pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.8 **NppStatus nppsConvert_32f16u_Sfs (const Npp32f * pSrc, Npp16u * pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.9 **NppStatus nppsConvert_32f32s_Sfs (const Npp32f * pSrc, Npp32s * pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.10 **NppStatus nppsConvert_32f64f (const Npp32f * pSrc, Npp64f * pDst, int nLength)**
- 7.130.1.11 **NppStatus nppsConvert_32f8s_Sfs (const Npp32f * pSrc, Npp8s * pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.12 **NppStatus nppsConvert_32f8u_Sfs (const Npp32f * pSrc, Npp8u * pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.13 **NppStatus nppsConvert_32s16s (const Npp32s * pSrc, Npp16s * pDst, int nLength)**
- 7.130.1.14 **NppStatus nppsConvert_32s16s_Sfs (const Npp32s * pSrc, Npp16s * pDst, int nLength, int nScaleFactor)**
- 7.130.1.15 **NppStatus nppsConvert_32s32f (const Npp32s * pSrc, Npp32f * pDst, int nLength)**
- 7.130.1.16 **NppStatus nppsConvert_32s32f_Sfs (const Npp32s * pSrc, Npp32f * pDst, int nLength, int nScaleFactor)**
- 7.130.1.17 **NppStatus nppsConvert_32s64f (const Npp32s * pSrc, Npp64f * pDst, int nLength)**
- 7.130.1.18 **NppStatus nppsConvert_32s64f_Sfs (const Npp32s * pSrc, Npp64f * pDst, int nLength, int nScaleFactor)**
- 7.130.1.19 **NppStatus nppsConvert_64f16s_Sfs (const Npp64f * pSrc, Npp16s * pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.20 **NppStatus nppsConvert_64f32f (const Npp64f * pSrc, Npp32f * pDst, int nLength)**
- 7.130.1.21 **NppStatus nppsConvert_64f32s_Sfs (const Npp64f * pSrc, Npp32s * pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.22 **NppStatus nppsConvert_64f64s_Sfs (const Npp64f * pSrc, Npp64s * pDst, int nLength, NppRoundMode eRoundMode, int nScaleFactor)**
- 7.130.1.23 **NppStatus nppsConvert_64s32s_Sfs (const Npp64s * pSrc, Npp32s * pDst, int nLength,**

7.131 Threshold

Threshold Functions

Performs the threshold operation on the samples of a signal by limiting the sample values by a specified constant value.

- `NppStatus nppsThreshold_16s (const Npp16s *pSrc, Npp16s *pDst, int nLength, Npp16s nLevel, NppCmpOp nRelOp)`
16-bit signed short signal threshold with constant level.
- `NppStatus nppsThreshold_16s_I (Npp16s *pSrcDst, int nLength, Npp16s nLevel, NppCmpOp nRelOp)`
16-bit in place signed short signal threshold with constant level.
- `NppStatus nppsThreshold_16sc (const Npp16sc *pSrc, Npp16sc *pDst, int nLength, Npp16s nLevel, NppCmpOp nRelOp)`
16-bit signed short complex number signal threshold with constant level.
- `NppStatus nppsThreshold_16sc_I (Npp16sc *pSrcDst, int nLength, Npp16s nLevel, NppCmpOp nRelOp)`
16-bit in place signed short complex number signal threshold with constant level.
- `NppStatus nppsThreshold_32f (const Npp32f *pSrc, Npp32f *pDst, int nLength, Npp32f nLevel, NppCmpOp nRelOp)`
32-bit floating point signal threshold with constant level.
- `NppStatus nppsThreshold_32f_I (Npp32f *pSrcDst, int nLength, Npp32f nLevel, NppCmpOp nRelOp)`
32-bit in place floating point signal threshold with constant level.
- `NppStatus nppsThreshold_32fc (const Npp32fc *pSrc, Npp32fc *pDst, int nLength, Npp32f nLevel, NppCmpOp nRelOp)`
32-bit floating point complex number signal threshold with constant level.
- `NppStatus nppsThreshold_32fc_I (Npp32fc *pSrcDst, int nLength, Npp32f nLevel, NppCmpOp nRelOp)`
32-bit in place floating point complex number signal threshold with constant level.
- `NppStatus nppsThreshold_64f (const Npp64f *pSrc, Npp64f *pDst, int nLength, Npp64f nLevel, NppCmpOp nRelOp)`
64-bit floating point signal threshold with constant level.
- `NppStatus nppsThreshold_64f_I (Npp64f *pSrcDst, int nLength, Npp64f nLevel, NppCmpOp nRelOp)`
64-bit in place floating point signal threshold with constant level.
- `NppStatus nppsThreshold_64fc (const Npp64fc *pSrc, Npp64fc *pDst, int nLength, Npp64f nLevel, NppCmpOp nRelOp)`
64-bit floating point complex number signal threshold with constant level.

- **NppStatus nppsThreshold_64fc_I** (`Npp64fc *pSrcDst, int nLength, Npp64f nLevel, NppCmpOp nRelOp`)
64-bit in place floating point complex number signal threshold with constant level.
- **NppStatus nppsThreshold_LT_16s** (`const Npp16s *pSrc, Npp16s *pDst, int nLength, Npp16s nLevel`)
16-bit signed short signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_16s_I** (`Npp16s *pSrcDst, int nLength, Npp16s nLevel`)
16-bit in place signed short signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_16sc** (`const Npp16sc *pSrc, Npp16sc *pDst, int nLength, Npp16s nLevel`)
16-bit signed short complex number signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_16sc_I** (`Npp16sc *pSrcDst, int nLength, Npp16s nLevel`)
16-bit in place signed short complex number signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_32f** (`const Npp32f *pSrc, Npp32f *pDst, int nLength, Npp32f nLevel`)
32-bit floating point signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_32f_I** (`Npp32f *pSrcDst, int nLength, Npp32f nLevel`)
32-bit in place floating point signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_32fc** (`const Npp32fc *pSrc, Npp32fc *pDst, int nLength, Npp32f nLevel`)
32-bit floating point complex number signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_32fc_I** (`Npp32fc *pSrcDst, int nLength, Npp32f nLevel`)
32-bit in place floating point complex number signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_64f** (`const Npp64f *pSrc, Npp64f *pDst, int nLength, Npp64f nLevel`)
64-bit floating point signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_64f_I** (`Npp64f *pSrcDst, int nLength, Npp64f nLevel`)
64-bit in place floating point signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_64fc** (`const Npp64fc *pSrc, Npp64fc *pDst, int nLength, Npp64f nLevel`)
64-bit floating point complex number signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LT_64fc_I** (`Npp64fc *pSrcDst, int nLength, Npp64f nLevel`)
64-bit in place floating point complex number signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_GT_16s** (`const Npp16s *pSrc, Npp16s *pDst, int nLength, Npp16s nLevel`)
16-bit signed short signal NPP_CMP_GREATER threshold with constant level.

- **NppStatus nppsThreshold_GT_16s_I** (*Npp16s *pSrcDst*, *int nLength*, *Npp16s nLevel*)

16-bit in place signed short signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_16sc** (*const Npp16sc *pSrc*, *Npp16sc *pDst*, *int nLength*, *Npp16s nLevel*)

16-bit signed short complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_16sc_I** (*Npp16sc *pSrcDst*, *int nLength*, *Npp16s nLevel*)

16-bit in place signed short complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_32f** (*const Npp32f *pSrc*, *Npp32f *pDst*, *int nLength*, *Npp32f nLevel*)

32-bit floating point signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_32f_I** (*Npp32f *pSrcDst*, *int nLength*, *Npp32f nLevel*)

32-bit in place floating point signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_32fc** (*const Npp32fc *pSrc*, *Npp32fc *pDst*, *int nLength*, *Npp32fc nLevel*)

32-bit floating point complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_32fc_I** (*Npp32fc *pSrcDst*, *int nLength*, *Npp32fc nLevel*)

32-bit in place floating point complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_64f** (*const Npp64f *pSrc*, *Npp64f *pDst*, *int nLength*, *Npp64f nLevel*)

64-bit floating point signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_64f_I** (*Npp64f *pSrcDst*, *int nLength*, *Npp64f nLevel*)

64-bit in place floating point signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_64fc** (*const Npp64fc *pSrc*, *Npp64fc *pDst*, *int nLength*, *Npp64fc nLevel*)

64-bit floating point complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GT_64fc_I** (*Npp64fc *pSrcDst*, *int nLength*, *Npp64fc nLevel*)

64-bit in place floating point complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_LTVal_16s** (*const Npp16s *pSrc*, *Npp16s *pDst*, *int nLength*, *Npp16s nLevel*, *Npp16s nValue*)

16-bit signed short signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LTVal_16s_I** (*Npp16s *pSrcDst*, *int nLength*, *Npp16s nLevel*, *Npp16s nValue*)

16-bit in place signed short signal NPP_CMP_LESS threshold with constant level.
- **NppStatus nppsThreshold_LTVal_16sc** (*const Npp16sc *pSrc*, *Npp16sc *pDst*, *int nLength*, *Npp16sc nLevel*, *Npp16sc nValue*)

16-bit signed short complex number signal NPP_CMP_LESS threshold with constant level.

- `NppStatus nppsThreshold_LTVal_16sc_I (Npp16sc *pSrcDst, int nLength, Npp16s nLevel, Npp16sc nValue)`
16-bit in place signed short complex number signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_LTVal_32f (const Npp32f *pSrc, Npp32f *pDst, int nLength, Npp32f nLevel, Npp32f nValue)`
32-bit floating point signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_LTVal_32f_I (Npp32f *pSrcDst, int nLength, Npp32f nLevel, Npp32f nValue)`
32-bit in place floating point signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_LTVal_32fc (const Npp32fc *pSrc, Npp32fc *pDst, int nLength, Npp32fc nLevel, Npp32fc nValue)`
32-bit floating point complex number signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_LTVal_32fc_I (Npp32fc *pSrcDst, int nLength, Npp32f nLevel, Npp32fc nValue)`
32-bit in place floating point complex number signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_LTVal_64f (const Npp64f *pSrc, Npp64f *pDst, int nLength, Npp64f nLevel, Npp64f nValue)`
64-bit floating point signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_LTVal_64f_I (Npp64f *pSrcDst, int nLength, Npp64f nLevel, Npp64f nValue)`
64-bit in place floating point signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_LTVal_64fc (const Npp64fc *pSrc, Npp64fc *pDst, int nLength, Npp64fc nLevel, Npp64fc nValue)`
64-bit floating point complex number signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_LTVal_64fc_I (Npp64fc *pSrcDst, int nLength, Npp64f nLevel, Npp64fc nValue)`
64-bit in place floating point complex number signal NPP_CMP_LESS threshold with constant level.
- `NppStatus nppsThreshold_GTVal_16s (const Npp16s *pSrc, Npp16s *pDst, int nLength, Npp16s nLevel, Npp16s nValue)`
16-bit signed short signal NPP_CMP_GREATER threshold with constant level.
- `NppStatus nppsThreshold_GTVal_16s_I (Npp16s *pSrcDst, int nLength, Npp16s nLevel, Npp16s nValue)`
16-bit in place signed short signal NPP_CMP_GREATER threshold with constant level.
- `NppStatus nppsThreshold_GTVal_16sc (const Npp16sc *pSrc, Npp16sc *pDst, int nLength, Npp16sc nLevel, Npp16sc nValue)`
16-bit signed short complex number signal NPP_CMP_GREATER threshold with constant level.
- `NppStatus nppsThreshold_GTVal_16sc_I (Npp16sc *pSrcDst, int nLength, Npp16s nLevel, Npp16sc nValue)`
16-bit in place signed short complex number signal NPP_CMP_GREATER threshold with constant level.

- **NppStatus nppsThreshold_GTVal_32f** (const **Npp32f** ***pSrc**, **Npp32f** ***pDst**, int **nLength**, **Npp32f** **nLevel**, **Npp32f** **nValue**)
32-bit floating point signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GTVal_32f_I** (**Npp32f** ***pSrcDst**, int **nLength**, **Npp32f** **nLevel**, **Npp32f** **nValue**)
32-bit in place floating point signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GTVal_32fc** (const **Npp32fc** ***pSrc**, **Npp32fc** ***pDst**, int **nLength**, **Npp32fc** **nLevel**, **Npp32fc** **nValue**)
32-bit floating point complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GTVal_32fc_I** (**Npp32fc** ***pSrcDst**, int **nLength**, **Npp32fc** **nLevel**, **Npp32fc** **nValue**)
32-bit in place floating point complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GTVal_64f** (const **Npp64f** ***pSrc**, **Npp64f** ***pDst**, int **nLength**, **Npp64f** **nLevel**, **Npp64f** **nValue**)
64-bit floating point signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GTVal_64f_I** (**Npp64f** ***pSrcDst**, int **nLength**, **Npp64f** **nLevel**, **Npp64f** **nValue**)
64-bit in place floating point signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GTVal_64fc** (const **Npp64fc** ***pSrc**, **Npp64fc** ***pDst**, int **nLength**, **Npp64fc** **nLevel**, **Npp64fc** **nValue**)
64-bit floating point complex number signal NPP_CMP_GREATER threshold with constant level.
- **NppStatus nppsThreshold_GTVal_64fc_I** (**Npp64fc** ***pSrcDst**, int **nLength**, **Npp64fc** **nLevel**, **Npp64fc** **nValue**)
64-bit in place floating point complex number signal NPP_CMP_GREATER threshold with constant level.

7.131.1 Function Documentation

7.131.1.1 **NppStatus nppsThreshold_16s** (const **Npp16s** ***pSrc**, **Npp16s** ***pDst**, int **nLength**, **Npp16s** **nLevel**, **NppCmpOp** **nRelOp**)

16-bit signed short signal threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.2 NppStatus nppsThreshold_16s_I (Npp16s * pSrcDst, int nLength, Npp16s nLevel, NppCmpOp nRelOp)

16-bit in place signed short signal threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.3 NppStatus nppsThreshold_16sc (const Npp16sc * pSrc, Npp16sc * pDst, int nLength, Npp16s nLevel, NppCmpOp nRelOp)

16-bit signed short complex number signal threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.4 NppStatus nppsThreshold_16sc_I (Npp16sc * pSrcDst, int nLength, Npp16s nLevel, NppCmpOp nRelOp)

16-bit in place signed short complex number signal threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.5 NppStatus nppsThreshold_32f (const Npp32f * *pSrc*, Npp32f * *pDst*, int *nLength*, Npp32f *nLevel*, NppCmpOp *nRelOp*)

32-bit floating point signal threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.6 NppStatus nppsThreshold_32f_I (Npp32f * *pSrcDst*, int *nLength*, Npp32f *nLevel*, NppCmpOp *nRelOp*)

32-bit in place floating point signal threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.7 NppStatus nppsThreshold_32fc (const Npp32fc * *pSrc*, Npp32fc * *pDst*, int *nLength*, Npp32f *nLevel*, NppCmpOp *nRelOp*)

32-bit floating point complex number signal threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.8 NppStatus nppsThreshold_32fc_I (Npp32fc * pSrcDst, int nLength, Npp32f nLevel, NppCmpOp nRelOp)

32-bit in place floating point complex number signal threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.9 NppStatus nppsThreshold_64f (const Npp64f * pSrc, Npp64f * pDst, int nLength, Npp64f nLevel, NppCmpOp nRelOp)

64-bit floating point signal threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.10 NppStatus nppsThreshold_64f_I (Npp64f * pSrcDst, int nLength, Npp64f nLevel, NppCmpOp nRelOp)

64-bit in place floating point signal threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.11 NppStatus nppsThreshold_64fc (const Npp64fc * pSrc, Npp64fc * pDst, int nLength, Npp64f nLevel, NppCmpOp nRelOp)

64-bit floating point complex number signal threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.12 NppStatus nppsThreshold_64fc_I (Npp64fc * pSrcDst, int nLength, Npp64f nLevel, NppCmpOp nRelOp)

64-bit in place floating point complex number signal threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nRelOp NppCmpOp type of thresholding operation (NPP_CMP_LESS or NPP_CMP_GREATER only).

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.13 NppStatus nppsThreshold_GT_16s (const Npp16s **pSrc*, Npp16s **pDst*, int *nLength*, Npp16s *nLevel*)

16-bit signed short signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.14 NppStatus nppsThreshold_GT_16s_I (Npp16s **pSrcDst*, int *nLength*, Npp16s *nLevel*)

16-bit in place signed short signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.15 NppStatus nppsThreshold_GT_16sc (const Npp16sc **pSrc*, Npp16sc **pDst*, int *nLength*, Npp16s *nLevel*)

16-bit signed short complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.16 NppStatus nppsThreshold_GT_16sc_I (Npp16sc * pSrcDst, int nLength, Npp16s nLevel)

16-bit in place signed short complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.17 NppStatus nppsThreshold_GT_32f (const Npp32f * pSrc, Npp32f * pDst, int nLength, Npp32f nLevel)

32-bit floating point signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.18 NppStatus nppsThreshold_GT_32f_I (Npp32f * pSrcDst, int nLength, Npp32f nLevel)

32-bit in place floating point signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.19 NppStatus nppsThreshold_GT_32fc (const Npp32fc * pSrc, Npp32fc * pDst, int nLength, Npp32f nLevel)

32-bit floating point complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.20 NppStatus nppsThreshold_GT_32fc_I (Npp32fc * pSrcDst, int nLength, Npp32f nLevel)

32-bit in place floating point complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.21 NppStatus nppsThreshold_GT_64f (const Npp64f * pSrc, Npp64f * pDst, int nLength, Npp64f nLevel)

64-bit floating point signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.22 NppStatus nppsThreshold_GT_64f_I (Npp64f * pSrcDst, int nLength, Npp64f nLevel)

64-bit in place floating point signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.23 NppStatus nppsThreshold_GT_64fc (const Npp64fc * pSrc, Npp64fc * pDst, int nLength, Npp64f nLevel)

64-bit floating point complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.24 NppStatus nppsThreshold_GT_64fc_I (Npp64fc * pSrcDst, int nLength, Npp64f nLevel)

64-bit in place floating point complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.25 NppStatus nppsThreshold_GTVal_16s (const Npp16s * pSrc, Npp16s * pDst, int nLength, Npp16s nLevel, Npp16s nValue)

16-bit signed short signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.26 NppStatus nppsThreshold_GTVal_16s_I (Npp16s * pSrcDst, int nLength, Npp16s nLevel, Npp16s nValue)

16-bit in place signed short signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.27 NppStatus nppsThreshold_GTVal_16sc (const Npp16sc * pSrc, Npp16sc * pDst, int nLength, Npp16s nLevel, Npp16sc nValue)

16-bit signed short complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.28 NppStatus nppsThreshold_GTVal_16sc_I (Npp16sc * pSrcDst, int nLength, Npp16sc nLevel, Npp16sc nValue)

16-bit in place signed short complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.29 NppStatus nppsThreshold_GTVal_32f (const Npp32f * pSrc, Npp32f * pDst, int nLength, Npp32f nLevel, Npp32f nValue)

32-bit floating point signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.30 NppStatus nppsThreshold_GTVal_32f_I (Npp32f * pSrcDst, int nLength, Npp32f nLevel, Npp32f nValue)

32-bit in place floating point signal NPP_CMP_GREATER threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.31 NppStatus nppsThreshold_GTVal_32fc (const Npp32fc * pSrc, Npp32fc * pDst, int nLength, Npp32f nLevel, Npp32fc nValue)

32-bit floating point complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

- pSrc* Source Signal Pointer.
- pDst* Destination Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.32 NppStatus nppsThreshold_GTVal_32fc_I (Npp32fc * pSrcDst, int nLength, Npp32f nLevel, Npp32fc nValue)

32-bit in place floating point complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

- pSrcDst* In-Place Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.33 NppStatus nppsThreshold_GTVal_64f (const Npp64f * pSrc, Npp64f * pDst, int nLength, Npp64f nLevel, Npp64f nValue)

64-bit floating point signal NPP_CMP_GREATER threshold with constant level.

Parameters:

- pSrc* Source Signal Pointer.
- pDst* Destination Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.34 NppStatus nppsThreshold_GTVal_64f_I (Npp64f * pSrcDst, int nLength, Npp64f nLevel, Npp64f nValue)

64-bit in place floating point signal NPP_CMP_GREATER threshold with constant level.

Parameters:

- pSrcDst** In-Place Signal Pointer.
- nLength** Signal Length.
- nLevel** Constant threshold value to be used to limit each signal sample
- nValue** Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.35 NppStatus nppsThreshold_GTVal_64fc (const Npp64fc * pSrc, Npp64fc * pDst, int nLength, Npp64fc nLevel, Npp64fc nValue)

64-bit floating point complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

- pSrc** Source Signal Pointer.
- pDst** Destination Signal Pointer.
- nLength** Signal Length.
- nLevel** Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample
- nValue** Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.36 NppStatus nppsThreshold_GTVal_64fc_I (Npp64fc * pSrcDst, int nLength, Npp64f nLevel, Npp64fc nValue)

64-bit in place floating point complex number signal NPP_CMP_GREATER threshold with constant level.

Parameters:

- pSrcDst** In-Place Signal Pointer.
- nLength** Signal Length.
- nLevel** Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample
- nValue** Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.37 NppStatus nppsThreshold_LT_16s (const Npp16s **pSrc*, Npp16s **pDst*, int *nLength*, Npp16s *nLevel*)

16-bit signed short signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.38 NppStatus nppsThreshold_LT_16s_I (Npp16s **pSrcDst*, int *nLength*, Npp16s *nLevel*)

16-bit in place signed short signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.39 NppStatus nppsThreshold_LT_16sc (const Npp16sc **pSrc*, Npp16sc **pDst*, int *nLength*, Npp16s *nLevel*)

16-bit signed short complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.40 NppStatus nppsThreshold_LT_16sc_I (Npp16sc * pSrcDst, int nLength, Npp16s nLevel)

16-bit in place signed short complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.41 NppStatus nppsThreshold_LT_32f (const Npp32f * pSrc, Npp32f * pDst, int nLength, Npp32f nLevel)

32-bit floating point signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.42 NppStatus nppsThreshold_LT_32f_I (Npp32f * pSrcDst, int nLength, Npp32f nLevel)

32-bit in place floating point signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.43 NppStatus nppsThreshold_LT_32fc (const Npp32fc * pSrc, Npp32fc * pDst, int nLength, Npp32f nLevel)

32-bit floating point complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.44 NppStatus nppsThreshold_LT_32fc_I (Npp32fc * pSrcDst, int nLength, Npp32f nLevel)

32-bit in place floating point complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.45 NppStatus nppsThreshold_LT_64f (const Npp64f * pSrc, Npp64f * pDst, int nLength, Npp64f nLevel)

64-bit floating point signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.46 NppStatus nppsThreshold_LT_64f_I (Npp64f * pSrcDst, int nLength, Npp64f nLevel)

64-bit in place floating point signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.47 NppStatus nppsThreshold_LT_64fc (const Npp64fc * pSrc, Npp64fc * pDst, int nLength, Npp64f nLevel)

64-bit floating point complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.48 NppStatus nppsThreshold_LT_64fc_I (Npp64fc * pSrcDst, int nLength, Npp64f nLevel)

64-bit in place floating point complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.49 NppStatus nppsThreshold_LTVal_16s (const Npp16s * pSrc, Npp16s * pDst, int nLength, Npp16s nLevel, Npp16s nValue)

16-bit signed short signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.50 NppStatus nppsThreshold_LTVal_16s_I (Npp16s * pSrcDst, int nLength, Npp16s nLevel, Npp16s nValue)

16-bit in place signed short signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.51 NppStatus nppsThreshold_LTVal_16sc (const Npp16sc * pSrc, Npp16sc * pDst, int nLength, Npp16s nLevel, Npp16sc nValue)

16-bit signed short complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.131.1.52 NppStatus nppsThreshold_LTVal_16sc_I (Npp16sc * pSrcDst, int nLength, Npp16sc nLevel, Npp16sc nValue)

16-bit in place signed short complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.53 NppStatus nppsThreshold_LTVal_32f (const Npp32f * pSrc, Npp32f * pDst, int nLength, Npp32f nLevel, Npp32f nValue)

32-bit floating point signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.54 NppStatus nppsThreshold_LTVal_32f_I (Npp32f * pSrcDst, int nLength, Npp32f nLevel, Npp32f nValue)

32-bit in place floating point signal NPP_CMP_LESS threshold with constant level.

Parameters:

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

nLevel Constant threshold value to be used to limit each signal sample

nValue Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.55 NppStatus nppsThreshold_LTVal_32fc (const Npp32fc * pSrc, Npp32fc * pDst, int nLength, Npp32f nLevel, Npp32fc nValue)

32-bit floating point complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

- pSrc* Source Signal Pointer.
- pDst* Destination Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.56 NppStatus nppsThreshold_LTVal_32fc_I (Npp32fc * pSrcDst, int nLength, Npp32f nLevel, Npp32fc nValue)

32-bit in place floating point complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

- pSrcDst* In-Place Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.57 NppStatus nppsThreshold_LTVal_64f (const Npp64f * pSrc, Npp64f * pDst, int nLength, Npp64f nLevel, Npp64f nValue)

64-bit floating point signal NPP_CMP_LESS threshold with constant level.

Parameters:

- pSrc* Source Signal Pointer.
- pDst* Destination Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.58 NppStatus nppsThreshold_LTVal_64f_I (Npp64f * pSrcDst, int nLength, Npp64f nLevel, Npp64f nValue)

64-bit in place floating point signal NPP_CMP_LESS threshold with constant level.

Parameters:

- pSrcDst* In-Place Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.59 NppStatus nppsThreshold_LTVal_64fc (const Npp64fc * pSrc, Npp64fc * pDst, int nLength, Npp64f nLevel, Npp64fc nValue)

64-bit floating point complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

- pSrc* Source Signal Pointer.
- pDst* Destination Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.131.1.60 NppStatus nppsThreshold_LTVal_64fc_I (Npp64fc * pSrcDst, int nLength, Npp64f nLevel, Npp64fc nValue)

64-bit in place floating point complex number signal NPP_CMP_LESS threshold with constant level.

Parameters:

- pSrcDst* In-Place Signal Pointer.
- nLength* Signal Length.
- nLevel* Constant threshold value (real part only and must be greater than 0) to be used to limit each signal sample
- nValue* Constant value to replace source value when threshold test is true.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.132 Filtering Functions

Functions that provide functionality of generating output signal based on the input signal like signal integral, etc.

Functions

- `NppStatus nppsIntegralGetSize_32s (int nLength, int *hpBufferSize)`
- `NppStatus nppsIntegral_32s (const Npp32s *pSrc, Npp32s *pDst, int nLength, Npp8u *pDeviceBuffer)`

7.132.1 Detailed Description

Functions that provide functionality of generating output signal based on the input signal like signal integral, etc.

7.132.2 Function Documentation

7.132.2.1 `NppStatus nppsIntegral_32s (const Npp32s *pSrc, Npp32s *pDst, int nLength, Npp8u *pDeviceBuffer)`

7.132.2.2 `NppStatus nppsIntegralGetSize_32s (int nLength, int *hpBufferSize)`

7.133 Initialization

Modules

- [Set](#)
- [Zero](#)
- [Copy](#)

7.134 Set

Set

Set methods for 1D vectors of various types.

The copy methods operate on vector data given as a pointer to the underlying data-type (e.g. 8-bit vectors would be passed as pointers to Npp8u type) and length of the vectors, i.e. the number of items.

- **NppStatus nppsSet_8u** ([Npp8u](#) nValue, [Npp8u](#) *pDst, int nLength)
8-bit unsigned char, vector set method.
- **NppStatus nppsSet_16s** ([Npp16s](#) nValue, [Npp16s](#) *pDst, int nLength)
16-bit integer, vector set method.
- **NppStatus nppsSet_16sc** ([Npp16sc](#) nValue, [Npp16sc](#) *pDst, int nLength)
16-bit integer complex, vector set method.
- **NppStatus nppsSet_32s** ([Npp32s](#) nValue, [Npp32s](#) *pDst, int nLength)
32-bit integer, vector set method.
- **NppStatus nppsSet_32sc** ([Npp32sc](#) nValue, [Npp32sc](#) *pDst, int nLength)
32-bit integer complex, vector set method.
- **NppStatus nppsSet_32f** ([Npp32f](#) nValue, [Npp32f](#) *pDst, int nLength)
32-bit float, vector set method.
- **NppStatus nppsSet_32fc** ([Npp32fc](#) nValue, [Npp32fc](#) *pDst, int nLength)
32-bit float complex, vector set method.
- **NppStatus nppsSet_64s** ([Npp64s](#) nValue, [Npp64s](#) *pDst, int nLength)
64-bit long long integer, vector set method.
- **NppStatus nppsSet_64sc** ([Npp64sc](#) nValue, [Npp64sc](#) *pDst, int nLength)
64-bit long long integer complex, vector set method.
- **NppStatus nppsSet_64f** ([Npp64f](#) nValue, [Npp64f](#) *pDst, int nLength)
64-bit double, vector set method.
- **NppStatus nppsSet_64fc** ([Npp64fc](#) nValue, [Npp64fc](#) *pDst, int nLength)
64-bit double complex, vector set method.

7.134.1 Function Documentation

7.134.1.1 **NppStatus nppsSet_16s** ([Npp16s](#) nValue, [Npp16s](#) *pDst, int nLength)

16-bit integer, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.2 NppStatus nppsSet_16sc (Npp16sc *nValue*, Npp16sc **pDst*, int *nLength*)

16-bit integer complex, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.3 NppStatus nppsSet_32f (Npp32f *nValue*, Npp32f **pDst*, int *nLength*)

32-bit float, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.4 NppStatus nppsSet_32fc (Npp32fc *nValue*, Npp32fc **pDst*, int *nLength*)

32-bit float complex, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.5 NppStatus nppsSet_32s (Npp32s *nValue*, Npp32s **pDst*, int *nLength*)

32-bit integer, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.6 NppStatus nppsSet_32sc (Npp32sc *nValue*, Npp32sc **pDst*, int *nLength*)

32-bit integer complex, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.7 NppStatus nppsSet_64f (Npp64f *nValue*, Npp64f **pDst*, int *nLength*)

64-bit double, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.8 NppStatus nppsSet_64fc (Npp64fc *nValue*, Npp64fc **pDst*, int *nLength*)

64-bit double complex, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.
pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.9 NppStatus nppsSet_64s (Npp64s *nValue*, Npp64s **pDst*, int *nLength*)

64-bit long long integer, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.10 NppStatus nppsSet_64sc (Npp64sc *nValue*, Npp64sc **pDst*, int *nLength*)

64-bit long long integer complex, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.134.1.11 NppStatus nppsSet_8u (Npp8u *nValue*, Npp8u **pDst*, int *nLength*)

8-bit unsigned char, vector set method.

Parameters:

nValue Value used to initialize the vector pDst.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135 Zero

Zero

Set signals to zero.

- [NppStatus nppsZero_8u \(Npp8u *pDst, int nLength\)](#)
8-bit unsigned char, vector zero method.
- [NppStatus nppsZero_16s \(Npp16s *pDst, int nLength\)](#)
16-bit integer, vector zero method.
- [NppStatus nppsZero_16sc \(Npp16sc *pDst, int nLength\)](#)
16-bit integer complex, vector zero method.
- [NppStatus nppsZero_32s \(Npp32s *pDst, int nLength\)](#)
32-bit integer, vector zero method.
- [NppStatus nppsZero_32sc \(Npp32sc *pDst, int nLength\)](#)
32-bit integer complex, vector zero method.
- [NppStatus nppsZero_32f \(Npp32f *pDst, int nLength\)](#)
32-bit float, vector zero method.
- [NppStatus nppsZero_32fc \(Npp32fc *pDst, int nLength\)](#)
32-bit float complex, vector zero method.
- [NppStatus nppsZero_64s \(Npp64s *pDst, int nLength\)](#)
64-bit long long integer, vector zero method.
- [NppStatus nppsZero_64sc \(Npp64sc *pDst, int nLength\)](#)
64-bit long long integer complex, vector zero method.
- [NppStatus nppsZero_64f \(Npp64f *pDst, int nLength\)](#)
64-bit double, vector zero method.
- [NppStatus nppsZero_64fc \(Npp64fc *pDst, int nLength\)](#)
64-bit double complex, vector zero method.

7.135.1 Function Documentation

7.135.1.1 NppStatus nppsZero_16s (Npp16s *pDst, int nLength)

16-bit integer, vector zero method.

Parameters:

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.2 NppStatus nppsZero_16sc (Npp16sc * *pDst*, int *nLength*)

16-bit integer complex, vector zero method.

Parameters:

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.3 NppStatus nppsZero_32f (Npp32f * *pDst*, int *nLength*)

32-bit float, vector zero method.

Parameters:

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.4 NppStatus nppsZero_32fc (Npp32fc * *pDst*, int *nLength*)

32-bit float complex, vector zero method.

Parameters:

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.5 NppStatus nppsZero_32s (Npp32s * *pDst*, int *nLength*)

32-bit integer, vector zero method.

Parameters:

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.6 NppStatus nppsZero_32sc (Npp32sc **pDst*, int *nLength*)

32-bit integer complex, vector zero method.

Parameters:

pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.7 NppStatus nppsZero_64f (Npp64f **pDst*, int *nLength*)

64-bit double, vector zero method.

Parameters:

pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.8 NppStatus nppsZero_64fc (Npp64fc **pDst*, int *nLength*)

64-bit double complex, vector zero method.

Parameters:

pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.9 NppStatus nppsZero_64s (Npp64s **pDst*, int *nLength*)

64-bit long long integer, vector zero method.

Parameters:

pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.10 NppStatus nppsZero_64sc (Npp64sc * pDst, int nLength)

64-bit long long integer complex, vector zero method.

Parameters:

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.135.1.11 NppStatus nppsZero_8u (Npp8u * pDst, int nLength)

8-bit unsigned char, vector zero method.

Parameters:

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136 Copy

Copy

Copy methods for various type signals.

Copy methods operate on signal data given as a pointer to the underlying data-type (e.g. 8-bit vectors would be passed as pointers to Npp8u type) and length of the vectors, i.e. the number of items.

- **NppStatus nppsCopy_8u** (const Npp8u *pSrc, Npp8u *pDst, int nLength)
8-bit unsigned char, vector copy method
- **NppStatus nppsCopy_16s** (const Npp16s *pSrc, Npp16s *pDst, int nLength)
16-bit signed short, vector copy method.
- **NppStatus nppsCopy_32s** (const Npp32s *pSrc, Npp32s *pDst, int nLength)
32-bit signed integer, vector copy method.
- **NppStatus nppsCopy_32f** (const Npp32f *pSrc, Npp32f *pDst, int nLength)
32-bit float, vector copy method.
- **NppStatus nppsCopy_64s** (const Npp64s *pSrc, Npp64s *pDst, int nLength)
64-bit signed integer, vector copy method.
- **NppStatus nppsCopy_16sc** (const Npp16sc *pSrc, Npp16sc *pDst, int nLength)
16-bit complex short, vector copy method.
- **NppStatus nppsCopy_32sc** (const Npp32sc *pSrc, Npp32sc *pDst, int nLength)
32-bit complex signed integer, vector copy method.
- **NppStatus nppsCopy_32fc** (const Npp32fc *pSrc, Npp32fc *pDst, int nLength)
32-bit complex float, vector copy method.
- **NppStatus nppsCopy_64sc** (const Npp64sc *pSrc, Npp64sc *pDst, int nLength)
64-bit complex signed integer, vector copy method.
- **NppStatus nppsCopy_64fc** (const Npp64fc *pSrc, Npp64fc *pDst, int nLength)
64-bit complex double, vector copy method.

7.136.1 Function Documentation

7.136.1.1 NppStatus nppsCopy_16s (const Npp16s * pSrc, Npp16s * pDst, int nLength)

16-bit signed short, vector copy method.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.2 NppStatus nppsCopy_16sc (const Npp16sc * *pSrc*, Npp16sc * *pDst*, int *nLength*)

16-bit complex short, vector copy method.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.3 NppStatus nppsCopy_32f (const Npp32f * *pSrc*, Npp32f * *pDst*, int *nLength*)

32-bit float, vector copy method.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.4 NppStatus nppsCopy_32fc (const Npp32fc * *pSrc*, Npp32fc * *pDst*, int *nLength*)

32-bit complex float, vector copy method.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.5 NppStatus nppsCopy_32s (const Npp32s * *pSrc*, Npp32s * *pDst*, int *nLength*)

32-bit signed integer, vector copy method.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.6 NppStatus nppsCopy_32sc (const Npp32sc * *pSrc*, Npp32sc * *pDst*, int *nLength*)

32-bit complex signed integer, vector copy method.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.7 NppStatus nppsCopy_64fc (const Npp64fc * *pSrc*, Npp64fc * *pDst*, int *nLength*)

64-bit complex double, vector copy method.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.8 NppStatus nppsCopy_64s (const Npp64s * *pSrc*, Npp64s * *pDst*, int *nLength*)

64-bit signed integer, vector copy method.

Parameters:

pSrc Source Signal Pointer.
pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.9 NppStatus nppsCopy_64sc (const Npp64sc **pSrc*, Npp64sc **pDst*, int *nLength*)

64-bit complex signed integer, vector copy method.

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.136.1.10 NppStatus nppsCopy_8u (const Npp8u **pSrc*, Npp8u **pDst*, int *nLength*)

8-bit unsigned char, vector copy method

Parameters:

pSrc Source Signal Pointer.

pDst Destination Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.137 Statistical Functions

Functions that provide global signal statistics like: sum, mean, standard deviation, min, max, etc.

Modules

- [MinEvery And MaxEvery Functions](#)

Performs the min or max operation on the samples of a signal.

- [Sum](#)
- [Maximum](#)
- [Minimum](#)
- [Mean](#)
- [Standard Deviation](#)
- [Mean And Standard Deviation](#)
- [Minimum_Maximum](#)
- [Infinity Norm](#)
- [L1 Norm](#)
- [L2 Norm](#)
- [Infinity Norm Diff](#)
- [L1 Norm Diff](#)
- [L2 Norm Diff](#)
- [Dot Product](#)
- [Count In Range](#)
- [Count Zero Crossings](#)

7.137.1 Detailed Description

Functions that provide global signal statistics like: sum, mean, standard deviation, min, max, etc.

7.138 MinEvery And MaxEvery Functions

Performs the min or max operation on the samples of a signal.

Functions

- `NppStatus nppsMinEvery_8u_I (const Npp8u *pSrc, Npp8u *pSrcDst, int nLength)`
8-bit in place min value for each pair of elements.
- `NppStatus nppsMinEvery_16u_I (const Npp16u *pSrc, Npp16u *pSrcDst, int nLength)`
16-bit unsigned short integer in place min value for each pair of elements.
- `NppStatus nppsMinEvery_16s_I (const Npp16s *pSrc, Npp16s *pSrcDst, int nLength)`
16-bit signed short integer in place min value for each pair of elements.
- `NppStatus nppsMinEvery_32s_I (const Npp32s *pSrc, Npp32s *pSrcDst, int nLength)`
32-bit signed integer in place min value for each pair of elements.
- `NppStatus nppsMinEvery_32f_I (const Npp32f *pSrc, Npp32f *pSrcDst, int nLength)`
32-bit floating point in place min value for each pair of elements.
- `NppStatus nppsMinEvery_64f_I (const Npp64f *pSrc, Npp64f *pSrcDst, int nLength)`
64-bit floating point in place min value for each pair of elements.
- `NppStatus nppsMaxEvery_8u_I (const Npp8u *pSrc, Npp8u *pSrcDst, int nLength)`
8-bit in place max value for each pair of elements.
- `NppStatus nppsMaxEvery_16u_I (const Npp16u *pSrc, Npp16u *pSrcDst, int nLength)`
16-bit unsigned short integer in place max value for each pair of elements.
- `NppStatus nppsMaxEvery_16s_I (const Npp16s *pSrc, Npp16s *pSrcDst, int nLength)`
16-bit signed short integer in place max value for each pair of elements.
- `NppStatus nppsMaxEvery_32s_I (const Npp32s *pSrc, Npp32s *pSrcDst, int nLength)`
32-bit signed integer in place max value for each pair of elements.
- `NppStatus nppsMaxEvery_32f_I (const Npp32f *pSrc, Npp32f *pSrcDst, int nLength)`
32-bit floating point in place max value for each pair of elements.

7.138.1 Detailed Description

Performs the min or max operation on the samples of a signal.

7.138.2 Function Documentation

7.138.2.1 `NppStatus nppsMaxEvery_16s_I (const Npp16s *pSrc, Npp16s *pSrcDst, int nLength)`

16-bit signed short integer in place max value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.2 NppStatus nppsMaxEvery_16u_I (const Npp16u * pSrc, Npp16u * pSrcDst, int nLength)

16-bit unsigned short integer in place max value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.3 NppStatus nppsMaxEvery_32f_I (const Npp32f * pSrc, Npp32f * pSrcDst, int nLength)

32-bit floating point in place max value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.4 NppStatus nppsMaxEvery_32s_I (const Npp32s * pSrc, Npp32s * pSrcDst, int nLength)

32-bit signed integer in place max value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.5 NppStatus nppsMaxEvery_8u_I (const Npp8u * pSrc, Npp8u * pSrcDst, int nLength)

8-bit in place max value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.6 NppStatus nppsMinEvery_16s_I (const Npp16s * pSrc, Npp16s * pSrcDst, int nLength)

16-bit signed short integer in place min value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.7 NppStatus nppsMinEvery_16u_I (const Npp16u * pSrc, Npp16u * pSrcDst, int nLength)

16-bit unsigned short integer in place min value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer.
nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.8 NppStatus nppsMinEvery_32f_I (const Npp32f * pSrc, Npp32f * pSrcDst, int nLength)

32-bit floating point in place min value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.
pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.9 NppStatus nppsMinEvery_32s_I (const Npp32s * pSrc, Npp32s * pSrcDst, int nLength)

32-bit signed integer in place min value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.10 NppStatus nppsMinEvery_64f_I (const Npp64f * pSrc, Npp64f * pSrcDst, int nLength)

64-bit floating point in place min value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.138.2.11 NppStatus nppsMinEvery_8u_I (const Npp8u * pSrc, Npp8u * pSrcDst, int nLength)

8-bit in place min value for each pair of elements.

Parameters:

pSrc Source Signal Pointer.

pSrcDst In-Place Signal Pointer.

nLength Signal Length.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.139 Sum

Functions

- **NppStatus nppsSumGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_32f.
- **NppStatus nppsSumGetBufferSize_32fc** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_32fc.
- **NppStatus nppsSumGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_64f.
- **NppStatus nppsSumGetBufferSize_64fc** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_64fc.
- **NppStatus nppsSumGetBufferSize_16s_Sfs** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_16s_Sfs.
- **NppStatus nppsSumGetBufferSize_16sc_Sfs** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_16sc_Sfs.
- **NppStatus nppsSumGetBufferSize_16sc32sc_Sfs** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_16sc32sc_Sfs.
- **NppStatus nppsSumGetBufferSize_32s_Sfs** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_32s_Sfs.
- **NppStatus nppsSumGetBufferSize_16s32s_Sfs** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsSum_16s32s_Sfs.
- **NppStatus nppsSum_32f** (const Npp32f *pSrc, int nLength, Npp32f *pSum, Npp8u *pDeviceBuffer)
32-bit float vector sum method
- **NppStatus nppsSum_32fc** (const Npp32fc *pSrc, int nLength, Npp32fc *pSum, Npp8u *pDeviceBuffer)
32-bit float complex vector sum method
- **NppStatus nppsSum_64f** (const Npp64f *pSrc, int nLength, Npp64f *pSum, Npp8u *pDeviceBuffer)
64-bit double vector sum method
- **NppStatus nppsSum_64fc** (const Npp64fc *pSrc, int nLength, Npp64fc *pSum, Npp8u *pDeviceBuffer)
64-bit double complex vector sum method
- **NppStatus nppsSum_16s_Sfs** (const Npp16s *pSrc, int nLength, Npp16s *pSum, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit short vector sum with integer scaling method

- **NppStatus nppsSum_32s_Sfs** (const **Npp32s** **pSrc*, int *nLength*, **Npp32s** **pSum*, int *nScaleFactor*, **Npp8u** **pDeviceBuffer*)
32-bit integer vector sum with integer scaling method
- **NppStatus nppsSum_16sc_Sfs** (const **Npp16sc** **pSrc*, int *nLength*, **Npp16sc** **pSum*, int *nScaleFactor*, **Npp8u** **pDeviceBuffer*)
16-bit short complex vector sum with integer scaling method
- **NppStatus nppsSum_16sc32sc_Sfs** (const **Npp16sc** **pSrc*, int *nLength*, **Npp32sc** **pSum*, int *nScaleFactor*, **Npp8u** **pDeviceBuffer*)
16-bit short complex vector sum (32bit int complex) with integer scaling method
- **NppStatus nppsSum_16s32s_Sfs** (const **Npp16s** **pSrc*, int *nLength*, **Npp32s** **pSum*, int *nScaleFactor*, **Npp8u** **pDeviceBuffer*)
16-bit integer vector sum (32bit) with integer scaling method

7.139.1 Function Documentation

7.139.1.1 NppStatus nppsSum_16s32s_Sfs (const Npp16s * *pSrc*, int *nLength*, Npp32s * *pSum*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

16-bit integer vector sum (32bit) with integer scaling method

Parameters:

- pSrc*** Source Signal Pointer.
nLength Signal Length.
pSum Pointer to the output result.
pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use **nppsSumGetBufferSize_16s32s_Sfs** to determine the minimum number of bytes required.
nScaleFactor Integer Result Scaling.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.139.1.2 NppStatus nppsSum_16s_Sfs (const Npp16s * *pSrc*, int *nLength*, Npp16s * *pSum*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

16-bit short vector sum with integer scaling method

Parameters:

- pSrc*** Source Signal Pointer.
nLength Signal Length.
pSum Pointer to the output result.
pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use **nppsSumGetBufferSize_16s_Sfs** to determine the minimum number of bytes required.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.139.1.3 NppStatus nppsSum_16sc32sc_Sfs (const Npp16sc * *pSrc*, int *nLength*, Npp32sc * *pSum*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

16-bit short complex vector sum (32bit int complex) with integer scaling method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pSum Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsSumGetBufferSize_16sc32sc_Sfs](#) to determine the minimum number of bytes required.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.139.1.4 NppStatus nppsSum_16sc_Sfs (const Npp16sc * *pSrc*, int *nLength*, Npp16sc * *pSum*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

16-bit short complex vector sum with integer scaling method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pSum Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsSumGetBufferSize_16sc_Sfs](#) to determine the minimum number of bytes required.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.139.1.5 NppStatus nppsSum_32f (const Npp32f * *pSrc*, int *nLength*, Npp32f * *pSum*, Npp8u * *pDeviceBuffer*)

32-bit float vector sum method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pSum Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsSumGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.139.1.6 NppStatus nppsSum_32fc (const Npp32fc **pSrc*, int *nLength*, Npp32fc **pSum*, Npp8u **pDeviceBuffer*)

32-bit float complex vector sum method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pSum Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsSumGetBufferSize_32fc](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.139.1.7 NppStatus nppsSum_32s_Sfs (const Npp32s **pSrc*, int *nLength*, Npp32s **pSum*, int *nScaleFactor*, Npp8u **pDeviceBuffer*)

32-bit integer vector sum with integer scaling method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pSum Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsSumGetBufferSize_32s_Sfs](#) to determine the minimum number of bytes required.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.139.1.8 NppStatus nppsSum_64f (const Npp64f * *pSrc*, int *nLength*, Npp64f * *pSum*, Npp8u * *pDeviceBuffer*)

64-bit double vector sum method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pSum Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsSumGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.139.1.9 NppStatus nppsSum_64fc (const Npp64fc * *pSrc*, int *nLength*, Npp64fc * *pSum*, Npp8u * *pDeviceBuffer*)

64-bit double complex vector sum method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pSum Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsSumGetBufferSize_64fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.139.1.10 NppStatus nppsSumGetBufferSize_16s32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.139.1.11 NppStatus nppsSumGetBufferSize_16s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_16s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.139.1.12 NppStatus nppsSumGetBufferSize_16sc32sc_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_16sc32sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.139.1.13 NppStatus nppsSumGetBufferSize_16sc_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_16sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.139.1.14 NppStatus nppsSumGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.139.1.15 NppStatus nppsSumGetBufferSize_32fc (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_32fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.139.1.16 NppStatus nppsSumGetBufferSize_32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.139.1.17 NppStatus nppsSumGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.139.1.18 NppStatus nppsSumGetBufferSize_64fc (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsSum_64fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140 Maximum

Functions

- **NppStatus nppsMaxGetBufferSize_16s** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMax_16s.
- **NppStatus nppsMaxGetBufferSize_32s** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMax_32s.
- **NppStatus nppsMaxGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMax_32f.
- **NppStatus nppsMaxGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMax_64f.
- **NppStatus nppsMax_16s** (const Npp16s *pSrc, int nLength, Npp16s *pMax, Npp8u *pDeviceBuffer)
16-bit integer vector max method
- **NppStatus nppsMax_32s** (const Npp32s *pSrc, int nLength, Npp32s *pMax, Npp8u *pDeviceBuffer)
32-bit integer vector max method
- **NppStatus nppsMax_32f** (const Npp32f *pSrc, int nLength, Npp32f *pMax, Npp8u *pDeviceBuffer)
32-bit float vector max method
- **NppStatus nppsMax_64f** (const Npp64f *pSrc, int nLength, Npp64f *pMax, Npp8u *pDeviceBuffer)
64-bit float vector max method
- **NppStatus nppsMaxIdxGetBufferSize_16s** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMaxIdx_16s.
- **NppStatus nppsMaxIdxGetBufferSize_32s** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMaxIdx_32s.
- **NppStatus nppsMaxIdxGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMaxIdx_32f.
- **NppStatus nppsMaxIdxGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMaxIdx_64f.
- **NppStatus nppsMaxIdx_16s** (const Npp16s *pSrc, int nLength, Npp16s *pMax, int *pIndx, Npp8u *pDeviceBuffer)
16-bit integer vector max index method
- **NppStatus nppsMaxIdx_32s** (const Npp32s *pSrc, int nLength, Npp32s *pMax, int *pIndx, Npp8u *pDeviceBuffer)

32-bit integer vector max index method

- **NppStatus nppsMaxIndx_32f** (const **Npp32f** **pSrc*, int *nLength*, **Npp32f** **pMax*, int **pIndx*, **Npp8u** **pDeviceBuffer*)

32-bit float vector max index method

- **NppStatus nppsMaxIndx_64f** (const **Npp64f** **pSrc*, int *nLength*, **Npp64f** **pMax*, int **pIndx*, **Npp8u** **pDeviceBuffer*)

64-bit float vector max index method

- **NppStatus nppsMaxAbsGetBufferSize_16s** (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxAbs_16s.

- **NppStatus nppsMaxAbsGetBufferSize_32s** (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxAbs_32s.

- **NppStatus nppsMaxAbs_16s** (const **Npp16s** **pSrc*, int *nLength*, **Npp16s** **pMaxAbs*, **Npp8u** **pDeviceBuffer*)

16-bit integer vector max absolute method

- **NppStatus nppsMaxAbs_32s** (const **Npp32s** **pSrc*, int *nLength*, **Npp32s** **pMaxAbs*, **Npp8u** **pDeviceBuffer*)

32-bit integer vector max absolute method

- **NppStatus nppsMaxAbsIndxGetBufferSize_16s** (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxAbsIndx_16s.

- **NppStatus nppsMaxAbsIndxGetBufferSize_32s** (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxAbsIndx_32s.

- **NppStatus nppsMaxAbsIndx_16s** (const **Npp16s** **pSrc*, int *nLength*, **Npp16s** **pMaxAbs*, int **pIndx*, **Npp8u** **pDeviceBuffer*)

16-bit integer vector max absolute index method

- **NppStatus nppsMaxAbsIndx_32s** (const **Npp32s** **pSrc*, int *nLength*, **Npp32s** **pMaxAbs*, int **pIndx*, **Npp8u** **pDeviceBuffer*)

32-bit integer vector max absolute index method

7.140.1 Function Documentation

7.140.1.1 NppStatus nppsMax_16s (const Npp16s **pSrc*, int *nLength*, Npp16s **pMax*, Npp8u **pDeviceBuffer*)

16-bit integer vector max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMax Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use [nppsMaxGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.2 NppStatus nppsMax_32f (const Npp32f * pSrc, int nLength, Npp32f * pMax, Npp8u * pDeviceBuffer)

32-bit float vector max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMax Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use [nppsMaxGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.3 NppStatus nppsMax_32s (const Npp32s * pSrc, int nLength, Npp32s * pMax, Npp8u * pDeviceBuffer)

32-bit integer vector max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMax Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use [nppsMaxGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.4 NppStatus nppsMax_64f (const Npp64f * pSrc, int nLength, Npp64f * pMax, Npp8u * pDeviceBuffer)

64-bit float vector max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMax Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMaxGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.5 NppStatus nppsMaxAbs_16s (const Npp16s **pSrc*, int *nLength*, Npp16s **pMaxAbs*, Npp8u **pDeviceBuffer*)

16-bit integer vector max absolute method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMaxAbs Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMaxAbsGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.6 NppStatus nppsMaxAbs_32s (const Npp32s **pSrc*, int *nLength*, Npp32s **pMaxAbs*, Npp8u **pDeviceBuffer*)

32-bit integer vector max absolute method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMaxAbs Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMaxAbsGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.7 NppStatus nppsMaxAbsGetBufferSize_16s (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxAbs_16s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.8 NppStatus nppsMaxAbsGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxAbs_32s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.9 NppStatus nppsMaxAbsIdx_16s (const Npp16s * *pSrc*, int *nLength*, Npp16s * *pMaxAbs*, int * *pIdx*, Npp8u * *pDeviceBuffer*)

16-bit integer vector max absolute index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMaxAbs Pointer to the output result.

pIdx Pointer to the index value of the first maximum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#). Use [nppsMaxAbsIdxGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.10 NppStatus nppsMaxAbsIdx_32s (const Npp32s * *pSrc*, int *nLength*, Npp32s * *pMaxAbs*, int * *pIdx*, Npp8u * *pDeviceBuffer*)

32-bit integer vector max absolute index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMaxAbs Pointer to the output result.

pIndex Pointer to the index value of the first maximum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMaxAbsIdxGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.11 NppStatus nppsMaxAbsIdxGetBufferSize_16s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxAbsIdx_16s.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.12 NppStatus nppsMaxAbsIdxGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxAbsIdx_32s.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.13 NppStatus nppsMaxGetBufferSize_16s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMax_16s.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.14 NppStatus nppsMaxGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMax_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.15 NppStatus nppsMaxGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMax_32s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.16 NppStatus nppsMaxGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMax_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.17 NppStatus nppsMaxIdx_16s (const Npp16s * *pSrc*, int *nLength*, Npp16s * *pMax*, int * *pIdx*, Npp8u * *pDeviceBuffer*)

16-bit integer vector max index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMax Pointer to the output result.

pIdx Pointer to the index value of the first maximum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMaxIndxGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.18 NppStatus nppsMaxIndx_32f (const Npp32f * pSrc, int nLength, Npp32f * pMax, int * pIdx, Npp8u * pDeviceBuffer)

32-bit float vector max index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMax Pointer to the output result.

pIdx Pointer to the index value of the first maximum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMaxIndxGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.19 NppStatus nppsMaxIndx_32s (const Npp32s * pSrc, int nLength, Npp32s * pMax, int * pIdx, Npp8u * pDeviceBuffer)

32-bit integer vector max index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMax Pointer to the output result.

pIdx Pointer to the index value of the first maximum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMaxIndxGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.20 NppStatus nppsMaxIdx_64f (const Npp64f * pSrc, int nLength, Npp64f * pMax, int * pIdx, Npp8u * pDeviceBuffer)

64-bit float vector max index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMax Pointer to the output result.

pIdx Pointer to the index value of the first maximum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMaxIdxGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.140.1.21 NppStatus nppsMaxIdxGetBufferSize_16s (int nLength, int * hpBufferSize)

Device scratch buffer size (in bytes) for nppsMaxIdx_16s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.22 NppStatus nppsMaxIdxGetBufferSize_32f (int nLength, int * hpBufferSize)

Device scratch buffer size (in bytes) for nppsMaxIdx_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.23 NppStatus nppsMaxIdxGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxIdx_32s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.140.1.24 NppStatus nppsMaxIdxGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMaxIdx_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141 Minimum

Functions

- **NppStatus nppsMinGetBufferSize_16s** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMin_16s.
- **NppStatus nppsMinGetBufferSize_32s** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMin_32s.
- **NppStatus nppsMinGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMin_32f.
- **NppStatus nppsMinGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMin_64f.
- **NppStatus nppsMin_16s** (const Npp16s *pSrc, int nLength, Npp16s *pMin, Npp8u *pDeviceBuffer)
16-bit integer vector min method
- **NppStatus nppsMin_32s** (const Npp32s *pSrc, int nLength, Npp32s *pMin, Npp8u *pDeviceBuffer)
32-bit integer vector min method
- **NppStatus nppsMin_32f** (const Npp32f *pSrc, int nLength, Npp32f *pMin, Npp8u *pDeviceBuffer)
32-bit integer vector min method
- **NppStatus nppsMin_64f** (const Npp64f *pSrc, int nLength, Npp64f *pMin, Npp8u *pDeviceBuffer)
64-bit integer vector min method
- **NppStatus nppsMinIdxGetBufferSize_16s** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMinIdx_16s.
- **NppStatus nppsMinIdxGetBufferSize_32s** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMinIdx_32s.
- **NppStatus nppsMinIdxGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMinIdx_32f.
- **NppStatus nppsMinIdxGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMinIdx_64f.
- **NppStatus nppsMinIdx_16s** (const Npp16s *pSrc, int nLength, Npp16s *pMin, int *pIdx, Npp8u *pDeviceBuffer)
16-bit integer vector min index method
- **NppStatus nppsMinIdx_32s** (const Npp32s *pSrc, int nLength, Npp32s *pMin, int *pIdx, Npp8u *pDeviceBuffer)

32-bit integer vector min index method

- **NppStatus nppsMinIndx_32f** (const **Npp32f** **pSrc*, int *nLength*, **Npp32f** **pMin*, int **pIndx*, **Npp8u** **pDeviceBuffer*)

32-bit float vector min index method

- **NppStatus nppsMinIndx_64f** (const **Npp64f** **pSrc*, int *nLength*, **Npp64f** **pMin*, int **pIndx*, **Npp8u** **pDeviceBuffer*)

64-bit float vector min index method

- **NppStatus nppsMinAbsGetBufferSize_16s** (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinAbs_16s.

- **NppStatus nppsMinAbsGetBufferSize_32s** (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinAbs_32s.

- **NppStatus nppsMinAbs_16s** (const **Npp16s** **pSrc*, int *nLength*, **Npp16s** **pMinAbs*, **Npp8u** **pDeviceBuffer*)

16-bit integer vector min absolute method

- **NppStatus nppsMinAbs_32s** (const **Npp32s** **pSrc*, int *nLength*, **Npp32s** **pMinAbs*, **Npp8u** **pDeviceBuffer*)

32-bit integer vector min absolute method

- **NppStatus nppsMinAbsIndxGetBufferSize_16s** (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinAbsIndx_16s.

- **NppStatus nppsMinAbsIndxGetBufferSize_32s** (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinAbsIndx_32s.

- **NppStatus nppsMinAbsIndx_16s** (const **Npp16s** **pSrc*, int *nLength*, **Npp16s** **pMinAbs*, int **pIndx*, **Npp8u** **pDeviceBuffer*)

16-bit integer vector min absolute index method

- **NppStatus nppsMinAbsIndx_32s** (const **Npp32s** **pSrc*, int *nLength*, **Npp32s** **pMinAbs*, int **pIndx*, **Npp8u** **pDeviceBuffer*)

32-bit integer vector min absolute index method

7.141.1 Function Documentation

7.141.1.1 NppStatus nppsMin_16s (const Npp16s **pSrc*, int *nLength*, Npp16s **pMin*, Npp8u **pDeviceBuffer*)

16-bit integer vector min method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use [nppsMinGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.2 NppStatus nppsMin_32f (const Npp32f * pSrc, int nLength, Npp32f * pMin, Npp8u * pDeviceBuffer)

32-bit integer vector min method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use [nppsMinGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.3 NppStatus nppsMin_32s (const Npp32s * pSrc, int nLength, Npp32s * pMin, Npp8u * pDeviceBuffer)

32-bit integer vector min method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use [nppsMinGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.4 NppStatus nppsMin_64f (const Npp64f * pSrc, int nLength, Npp64f * pMin, Npp8u * pDeviceBuffer)

64-bit integer vector min method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.5 NppStatus nppsMinAbs_16s (const Npp16s **pSrc*, int *nLength*, Npp16s **pMinAbs*, Npp8u **pDeviceBuffer*)

16-bit integer vector min absolute method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMinAbs Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinAbsGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.6 NppStatus nppsMinAbs_32s (const Npp32s **pSrc*, int *nLength*, Npp32s **pMinAbs*, Npp8u **pDeviceBuffer*)

32-bit integer vector min absolute method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMinAbs Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinAbsGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.7 NppStatus nppsMinAbsGetBufferSize_16s (int *nLength*, int **hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinAbs_16s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.8 NppStatus nppsMinAbsGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for *nppsMinAbs_32s*.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.9 NppStatus nppsMinAbsIdx_16s (const Npp16s * *pSrc*, int *nLength*, Npp16s * *pMinAbs*, int * *pIdx*, Npp8u * *pDeviceBuffer*)

16-bit integer vector min absolute index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMinAbs Pointer to the output result.

pIdx Pointer to the index value of the first minimum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#). Use [nppsMinAbsIdxGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.10 NppStatus nppsMinAbsIdx_32s (const Npp32s * *pSrc*, int *nLength*, Npp32s * *pMinAbs*, int * *pIdx*, Npp8u * *pDeviceBuffer*)

32-bit integer vector min absolute index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMinAbs Pointer to the output result.

pIndex Pointer to the index value of the first minimum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMinAbsIdxGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.11 NppStatus nppsMinAbsIdxGetBufferSize_16s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinAbsIdx_16s.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.12 NppStatus nppsMinAbsIdxGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinAbsIdx_32s.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.13 NppStatus nppsMinGetBufferSize_16s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMin_16s.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.14 NppStatus nppsMinGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMin_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.15 NppStatus nppsMinGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMin_32s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.16 NppStatus nppsMinGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMin_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.17 NppStatus nppsMinIndx_16s (const Npp16s * *pSrc*, int *nLength*, Npp16s * *pMin*, int * *pIndx*, Npp8u * *pDeviceBuffer*)

16-bit integer vector min index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the output result.

pIdx Pointer to the index value of the first minimum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMinIndxGetBufferSize_16s](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.18 NppStatus nppsMinIndx_32f (const Npp32f * pSrc, int nLength, Npp32f * pMin, int * pIdx, Npp8u * pDeviceBuffer)

32-bit float vector min index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the output result.

pIdx Pointer to the index value of the first minimum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMinIndxGetBufferSize_32f](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.19 NppStatus nppsMinIndx_32s (const Npp32s * pSrc, int nLength, Npp32s * pMin, int * pIdx, Npp8u * pDeviceBuffer)

32-bit integer vector min index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the output result.

pIdx Pointer to the index value of the first minimum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMinIndxGetBufferSize_32s](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.20 NppStatus nppsMinIndx_64f (const Npp64f * pSrc, int nLength, Npp64f * pMin, int * pIdx, Npp8u * pDeviceBuffer)

64-bit float vector min index method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the output result.

pIdx Pointer to the index value of the first minimum element.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMinIndxGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.141.1.21 NppStatus nppsMinIndxGetBufferSize_16s (int nLength, int * hpBufferSize)

Device scratch buffer size (in bytes) for nppsMinIndx_16s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.22 NppStatus nppsMinIndxGetBufferSize_32f (int nLength, int * hpBufferSize)

Device scratch buffer size (in bytes) for nppsMinIndx_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.23 NppStatus nppsMinIndxGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinIndx_32s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.141.1.24 NppStatus nppsMinIndxGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMinIndx_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.142 Mean

Functions

- **NppStatus nppsMeanGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMean_32f.
- **NppStatus nppsMeanGetBufferSize_32fc** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMean_32fc.
- **NppStatus nppsMeanGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMean_64f.
- **NppStatus nppsMeanGetBufferSize_64fc** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMean_64fc.
- **NppStatus nppsMeanGetBufferSize_16s_Sfs** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMean_16s_Sfs.
- **NppStatus nppsMeanGetBufferSize_32s_Sfs** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMean_32s_Sfs.
- **NppStatus nppsMeanGetBufferSize_16sc_Sfs** (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMean_16sc_Sfs.
- **NppStatus nppsMean_32f** (const Npp32f *pSrc, int nLength, Npp32f *pMean, Npp8u *pDeviceBuffer)
32-bit float vector mean method
- **NppStatus nppsMean_32fc** (const Npp32fc *pSrc, int nLength, Npp32fc *pMean, Npp8u *pDeviceBuffer)
32-bit float complex vector mean method
- **NppStatus nppsMean_64f** (const Npp64f *pSrc, int nLength, Npp64f *pMean, Npp8u *pDeviceBuffer)
64-bit double vector mean method
- **NppStatus nppsMean_64fc** (const Npp64fc *pSrc, int nLength, Npp64fc *pMean, Npp8u *pDeviceBuffer)
64-bit double complex vector mean method
- **NppStatus nppsMean_16s_Sfs** (const Npp16s *pSrc, int nLength, Npp16s *pMean, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit short vector mean with integer scaling method
- **NppStatus nppsMean_32s_Sfs** (const Npp32s *pSrc, int nLength, Npp32s *pMean, int nScaleFactor, Npp8u *pDeviceBuffer)
32-bit integer vector mean with integer scaling method
- **NppStatus nppsMean_16sc_Sfs** (const Npp16sc *pSrc, int nLength, Npp16sc *pMean, int nScaleFactor, Npp8u *pDeviceBuffer)
32-bit integer complex vector mean with integer scaling method

16-bit short complex vector mean with integer scaling method

7.142.1 Function Documentation

7.142.1.1 NppStatus nppsMean_16s_Sfs (const Npp16s **pSrc*, int *nLength*, Npp16s **pMean*, int *nScaleFactor*, Npp8u **pDeviceBuffer*)

16-bit short vector mean with integer scaling method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMeanGetBufferSize_16s_Sfs](#) to determine the minimum number of bytes required.

nScaleFactor Integer Result Scaling.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.142.1.2 NppStatus nppsMean_16sc_Sfs (const Npp16sc **pSrc*, int *nLength*, Npp16sc **pMean*, int *nScaleFactor*, Npp8u **pDeviceBuffer*)

16-bit short complex vector mean with integer scaling method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMeanGetBufferSize_16sc_Sfs](#) to determine the minimum number of bytes required.

nScaleFactor Integer Result Scaling.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.142.1.3 NppStatus nppsMean_32f (const Npp32f **pSrc*, int *nLength*, Npp32f **pMean*, Npp8u **pDeviceBuffer*)

32-bit float vector mean method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.

Use [nppsMeanGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.142.1.4 NppStatus nppsMean_32fc (const Npp32fc * *pSrc*, int *nLength*, Npp32fc * *pMean*, Npp8u * *pDeviceBuffer*)

32-bit float complex vector mean method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.

Use [nppsMeanGetBufferSize_32fc](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.142.1.5 NppStatus nppsMean_32s_Sfs (const Npp32s * *pSrc*, int *nLength*, Npp32s * *pMean*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

32-bit integer vector mean with integer scaling method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.

Use [nppsMeanGetBufferSize_32s_Sfs](#) to determine the minimum number of bytes required.

nScaleFactor Integer Result Scaling.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.142.1.6 NppStatus nppsMean_64f (const Npp64f * *pSrc*, int *nLength*, Npp64f * *pMean*, Npp8u * *pDeviceBuffer*)

64-bit double vector mean method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMeanGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.142.1.7 NppStatus nppsMean_64fc (const Npp64fc * *pSrc*, int *nLength*, Npp64fc * *pMean*, Npp8u * *pDeviceBuffer*)

64-bit double complex vector mean method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMeanGetBufferSize_64fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.142.1.8 NppStatus nppsMeanGetBufferSize_16s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMean_16s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.142.1.9 NppStatus nppsMeanGetBufferSize_16sc_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMean_16sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.142.1.10 NppStatus nppsMeanGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMean_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.142.1.11 NppStatus nppsMeanGetBufferSize_32fc (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMean_32fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.142.1.12 NppStatus nppsMeanGetBufferSize_32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMean_32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.142.1.13 NppStatus nppsMeanGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMean_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.142.1.14 NppStatus nppsMeanGetBufferSize_64fc (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMean_64fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.143 Standard Deviation

Functions

- [NppStatus nppsStdDevGetBufferSize_32f](#) (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsStdDev_32f.
- [NppStatus nppsStdDevGetBufferSize_64f](#) (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsStdDev_64f.
- [NppStatus nppsStdDevGetBufferSize_16s32s_Sfs](#) (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsStdDev_16s32s_Sfs.
- [NppStatus nppsStdDevGetBufferSize_16s_Sfs](#) (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsStdDev_16s_Sfs.
- [NppStatus nppsStdDev_32f](#) (const Npp32f *pSrc, int nLength, Npp32f *pStdDev, Npp8u *pDeviceBuffer)
32-bit float vector standard deviation method
- [NppStatus nppsStdDev_64f](#) (const Npp64f *pSrc, int nLength, Npp64f *pStdDev, Npp8u *pDeviceBuffer)
64-bit float vector standard deviation method
- [NppStatus nppsStdDev_16s32s_Sfs](#) (const Npp16s *pSrc, int nLength, Npp32s *pStdDev, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit float vector standard deviation method (return value is 32-bit)
- [NppStatus nppsStdDev_16s_Sfs](#) (const Npp16s *pSrc, int nLength, Npp16s *pStdDev, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit float vector standard deviation method (return value is also 16-bit)

7.143.1 Function Documentation

7.143.1.1 NppStatus nppsStdDev_16s32s_Sfs (const Npp16s * pSrc, int nLength, Npp32s * pStdDev, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit float vector standard deviation method (return value is 32-bit)

Parameters:

- pSrc** Source Signal Pointer.
nLength Signal Length.
pStdDev Pointer to the output result.
nScaleFactor Integer Result Scaling.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
 Use [nppsStdDevGetBufferSize_16s32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.143.1.2 NppStatus nppsStdDev_16s_Sfs (const Npp16s * pSrc, int nLength, Npp16s * pStdDev, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit float vector standard deviation method (return value is also 16-bit)

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pStdDev Pointer to the output result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsStdDevGetBufferSize_16s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.143.1.3 NppStatus nppsStdDev_32f (const Npp32f * pSrc, int nLength, Npp32f * pStdDev, Npp8u * pDeviceBuffer)

32-bit float vector standard deviation method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pStdDev Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsStdDevGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.143.1.4 NppStatus nppsStdDev_64f (const Npp64f * pSrc, int nLength, Npp64f * pStdDev, Npp8u * pDeviceBuffer)

64-bit float vector standard deviation method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pStdDev Pointer to the output result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsStdDevGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.143.1.5 NppStatus nppsStdDevGetBufferSize_16s32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsStdDev_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.143.1.6 NppStatus nppsStdDevGetBufferSize_16s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsStdDev_16s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.143.1.7 NppStatus nppsStdDevGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsStdDev_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.143.1.8 NppStatus nppsStdDevGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsStdDev_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.144 Mean And Standard Deviation

Functions

- [NppStatus nppsMeanStdDevGetBufferSize_32f](#) (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMeanStdDev_32f.
- [NppStatus nppsMeanStdDevGetBufferSize_64f](#) (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMeanStdDev_64f.
- [NppStatus nppsMeanStdDevGetBufferSize_16s32s_Sfs](#) (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMeanStdDev_16s32s_Sfs.
- [NppStatus nppsMeanStdDevGetBufferSize_16s_Sfs](#) (int nLength, int *hpBufferSize)
Device scratch buffer size (in bytes) for nppsMeanStdDev_16s_Sfs.
- [NppStatus nppsMeanStdDev_32f](#) (const [Npp32f](#) *pSrc, int nLength, [Npp32f](#) *pMean, [Npp32f](#) *pStdDev, [Npp8u](#) *pDeviceBuffer)
32-bit float vector mean and standard deviation method
- [NppStatus nppsMeanStdDev_64f](#) (const [Npp64f](#) *pSrc, int nLength, [Npp64f](#) *pMean, [Npp64f](#) *pStdDev, [Npp8u](#) *pDeviceBuffer)
64-bit float vector mean and standard deviation method
- [NppStatus nppsMeanStdDev_16s32s_Sfs](#) (const [Npp16s](#) *pSrc, int nLength, [Npp32s](#) *pMean, [Npp32s](#) *pStdDev, int nScaleFactor, [Npp8u](#) *pDeviceBuffer)
16-bit float vector mean and standard deviation method (return values are 32-bit)
- [NppStatus nppsMeanStdDev_16s_Sfs](#) (const [Npp16s](#) *pSrc, int nLength, [Npp16s](#) *pMean, [Npp16s](#) *pStdDev, int nScaleFactor, [Npp8u](#) *pDeviceBuffer)
16-bit float vector mean and standard deviation method (return values are also 16-bit)

7.144.1 Function Documentation

7.144.1.1 NppStatus nppsMeanStdDev_16s32s_Sfs (const [Npp16s](#) **pSrc*, int *nLength*, [Npp32s](#) **pMean*, [Npp32s](#) **pStdDev*, int *nScaleFactor*, [Npp8u](#) **pDeviceBuffer*)

16-bit float vector mean and standard deviation method (return values are 32-bit)

Parameters:

- pSrc* Source Signal Pointer.
nLength Signal Length.
pMean Pointer to the output mean value.
pStdDev Pointer to the output standard deviation value.
nScaleFactor Integer Result Scaling.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
 Use [nppsMeanStdDevGetBufferSize_16s32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.144.1.2 NppStatus nppsMeanStdDev_16s_Sfs (const Npp16s * pSrc, int nLength, Npp16s * pMean, Npp16s * pStdDev, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit float vector mean and standard deviation method (return values are also 16-bit)

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output mean value.

pStdDev Pointer to the output standard deviation value.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsMeanStdDevGetBufferSize_16s_Sfs](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.144.1.3 NppStatus nppsMeanStdDev_32f (const Npp32f * pSrc, int nLength, Npp32f * pMean, Npp32f * pStdDev, Npp8u * pDeviceBuffer)

32-bit float vector mean and standard deviation method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output mean value.

pStdDev Pointer to the output standard deviation value.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsMeanStdDevGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.144.1.4 NppStatus nppsMeanStdDev_64f (const Npp64f * pSrc, int nLength, Npp64f * pMean, Npp64f * pStdDev, Npp8u * pDeviceBuffer)

64-bit float vector mean and standard deviation method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMean Pointer to the output mean value.

pStdDev Pointer to the output standard deviation value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMeanStdDevGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.144.1.5 NppStatus nppsMeanStdDevGetBufferSize_16s32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMeanStdDev_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.144.1.6 NppStatus nppsMeanStdDevGetBufferSize_16s_Sfs (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMeanStdDev_16s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.144.1.7 NppStatus nppsMeanStdDevGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMeanStdDev_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.144.1.8 NppStatus nppsMeanStdDevGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device scratch buffer size (in bytes) for nppsMeanStdDev_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*. [Scratch Buffer and Host Pointer](#).

Returns:

NPP_SUCCESS

7.145 Minimum_Maximum

Functions

- **NppStatus nppsMinMaxBufferSize_8u** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMax_8u.
- **NppStatus nppsMinMaxBufferSize_16s** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMax_16s.
- **NppStatus nppsMinMaxBufferSize_16u** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMax_16u.
- **NppStatus nppsMinMaxBufferSize_32s** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMax_32s.
- **NppStatus nppsMinMaxBufferSize_32u** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMax_32u.
- **NppStatus nppsMinMaxBufferSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMax_32f.
- **NppStatus nppsMinMaxBufferSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMax_64f.
- **NppStatus nppsMinMax_8u** (const Npp8u *pSrc, int nLength, Npp8u *pMin, Npp8u *pMax, Npp8u *pDeviceBuffer)
8-bit char vector min and max method
- **NppStatus nppsMinMax_16s** (const Npp16s *pSrc, int nLength, Npp16s *pMin, Npp16s *pMax, Npp8u *pDeviceBuffer)
16-bit signed short vector min and max method
- **NppStatus nppsMinMax_16u** (const Npp16u *pSrc, int nLength, Npp16u *pMin, Npp16u *pMax, Npp8u *pDeviceBuffer)
16-bit unsigned short vector min and max method
- **NppStatus nppsMinMax_32u** (const Npp32u *pSrc, int nLength, Npp32u *pMin, Npp32u *pMax, Npp8u *pDeviceBuffer)
32-bit unsigned int vector min and max method
- **NppStatus nppsMinMax_32s** (const Npp32s *pSrc, int nLength, Npp32s *pMin, Npp32s *pMax, Npp8u *pDeviceBuffer)
32-bit signed int vector min and max method
- **NppStatus nppsMinMax_32f** (const Npp32f *pSrc, int nLength, Npp32f *pMin, Npp32f *pMax, Npp8u *pDeviceBuffer)
32-bit float vector min and max method
- **NppStatus nppsMinMax_64f** (const Npp64f *pSrc, int nLength, Npp64f *pMin, Npp64f *pMax, Npp8u *pDeviceBuffer)

64-bit double vector min and max method

- **NppStatus nppsMinMaxIdxGetBufferSize_8u** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMaxIdx_8u.
- **NppStatus nppsMinMaxIdxGetBufferSize_16s** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMaxIdx_16s.
- **NppStatus nppsMinMaxIdxGetBufferSize_16u** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMaxIdx_16u.
- **NppStatus nppsMinMaxIdxGetBufferSize_32s** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMaxIdx_32s.
- **NppStatus nppsMinMaxIdxGetBufferSize_32u** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMaxIdx_32u.
- **NppStatus nppsMinMaxIdxGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMaxIdx_32f.
- **NppStatus nppsMinMaxIdxGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsMinMaxIdx_64f.
- **NppStatus nppsMinMaxIdx_8u** (const Npp8u *pSrc, int nLength, Npp8u *pMin, int *pMinIndx, Npp8u *pMax, int *pMaxIndx, Npp8u *pDeviceBuffer)
8-bit char vector min and max with indices method
- **NppStatus nppsMinMaxIdx_16s** (const Npp16s *pSrc, int nLength, Npp16s *pMin, int *pMinIndx, Npp16s *pMax, int *pMaxIndx, Npp8u *pDeviceBuffer)
16-bit signed short vector min and max with indices method
- **NppStatus nppsMinMaxIdx_16u** (const Npp16u *pSrc, int nLength, Npp16u *pMin, int *pMinIndx, Npp16u *pMax, int *pMaxIndx, Npp8u *pDeviceBuffer)
16-bit unsigned short vector min and max with indices method
- **NppStatus nppsMinMaxIdx_32s** (const Npp32s *pSrc, int nLength, Npp32s *pMin, int *pMinIndx, Npp32s *pMax, int *pMaxIndx, Npp8u *pDeviceBuffer)
32-bit signed short vector min and max with indices method
- **NppStatus nppsMinMaxIdx_32u** (const Npp32u *pSrc, int nLength, Npp32u *pMin, int *pMinIndx, Npp32u *pMax, int *pMaxIndx, Npp8u *pDeviceBuffer)
32-bit unsigned short vector min and max with indices method
- **NppStatus nppsMinMaxIdx_32f** (const Npp32f *pSrc, int nLength, Npp32f *pMin, int *pMinIndx, Npp32f *pMax, int *pMaxIndx, Npp8u *pDeviceBuffer)
32-bit float vector min and max with indices method
- **NppStatus nppsMinMaxIdx_64f** (const Npp64f *pSrc, int nLength, Npp64f *pMin, int *pMinIndx, Npp64f *pMax, int *pMaxIndx, Npp8u *pDeviceBuffer)
64-bit float vector min and max with indices method

7.145.1 Function Documentation

7.145.1.1 NppStatus nppsMinMax_16s (const Npp16s * pSrc, int nLength, Npp16s * pMin, Npp16s * pMax, Npp8u * pDeviceBuffer)

16-bit signed short vector min and max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMax Pointer to the max output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinMaxGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.2 NppStatus nppsMinMax_16u (const Npp16u * pSrc, int nLength, Npp16u * pMin, Npp16u * pMax, Npp8u * pDeviceBuffer)

16-bit unsigned short vector min and max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMax Pointer to the max output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinMaxGetBufferSize_16u](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.3 NppStatus nppsMinMax_32f (const Npp32f * pSrc, int nLength, Npp32f * pMin, Npp32f * pMax, Npp8u * pDeviceBuffer)

32-bit float vector min and max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMax Pointer to the max output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMinMaxGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

**7.145.1.4 NppStatus nppsMinMax_32s (const Npp32s * pSrc, int nLength, Npp32s * pMin,
Npp32s * pMax, Npp8u * pDeviceBuffer)**

32-bit signed int vector min and max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMax Pointer to the max output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMinMaxGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

**7.145.1.5 NppStatus nppsMinMax_32u (const Npp32u * pSrc, int nLength, Npp32u * pMin,
Npp32u * pMax, Npp8u * pDeviceBuffer)**

32-bit unsigned int vector min and max method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMax Pointer to the max output result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsMinMaxGetBufferSize_32u](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

**7.145.1.6 NppStatus nppsMinMax_64f (const Npp64f * pSrc, int nLength, Npp64f * pMin,
Npp64f * pMax, Npp8u * pDeviceBuffer)**

64-bit double vector min and max method

Parameters:

pSrc Source Signal Pointer.
nLength Signal Length.
pMin Pointer to the min output result.
pMax Pointer to the max output result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
 Use [nppsMinMaxGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.7 NppStatus nppsMinMax_8u (const Npp8u * *pSrc*, int *nLength*, Npp8u * *pMin*, Npp8u * *pMax*, Npp8u * *pDeviceBuffer*)

8-bit char vector min and max method

Parameters:

pSrc Source Signal Pointer.
nLength Signal Length.
pMin Pointer to the min output result.
pMax Pointer to the max output result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
 Use [nppsMinMaxGetBufferSize_8u](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.8 NppStatus nppsMinMaxGetBufferSize_16s (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMax_16s.

Parameters:

nLength Signal Length.
hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.9 NppStatus nppsMinMaxGetBufferSize_16u (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMax_16u.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.10 NppStatus nppsMinMaxGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMax_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.11 NppStatus nppsMinMaxGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMax_32s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.12 NppStatus nppsMinMaxGetBufferSize_32u (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMax_32u.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.13 NppStatus nppsMinMaxGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMax_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.14 NppStatus nppsMinMaxGetBufferSize_8u (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMax_8u.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.15 NppStatus nppsMinMaxIndx_16s (const Npp16s * *pSrc*, int *nLength*, Npp16s * *pMin*, int * *pMinIndx*, Npp16s * *pMax*, int * *pMaxIndx*, Npp8u * *pDeviceBuffer*)

16-bit signed short vector min and max with indices method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMinIndx Pointer to the index of the first min value.

pMax Pointer to the max output result.

pMaxIndx Pointer to the index of the first max value.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsMinMaxIndxGetBufferSize_16s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.16 NppStatus nppsMinMaxIdx_16u (const Npp16u * pSrc, int nLength, Npp16u * pMin, int * pMinIndx, Npp16u * pMax, int * pMaxIndx, Npp8u * pDeviceBuffer)

16-bit unsigned short vector min and max with indices method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMinIndx Pointer to the index of the first min value.

pMax Pointer to the max output result.

pMaxIndx Pointer to the index of the first max value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinMaxIdxGetBufferSize_16u](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.17 NppStatus nppsMinMaxIdx_32f (const Npp32f * pSrc, int nLength, Npp32f * pMin, int * pMinIndx, Npp32f * pMax, int * pMaxIndx, Npp8u * pDeviceBuffer)

32-bit float vector min and max with indices method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMinIndx Pointer to the index of the first min value.

pMax Pointer to the max output result.

pMaxIndx Pointer to the index of the first max value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinMaxIdxGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.18 NppStatus nppsMinMaxIdx_32s (const Npp32s * pSrc, int nLength, Npp32s * pMin, int * pMinIndx, Npp32s * pMax, int * pMaxIndx, Npp8u * pDeviceBuffer)

32-bit signed short vector min and max with indices method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMinIdx Pointer to the index of the first min value.

pMax Pointer to the max output result.

pMaxIdx Pointer to the index of the first max value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinMaxIndxGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.19 NppStatus nppsMinMaxIndx_32u (const Npp32u * pSrc, int nLength, Npp32u * pMin, int * pMinIdx, Npp32u * pMax, int * pMaxIdx, Npp8u * pDeviceBuffer)

32-bit unsigned short vector min and max with indices method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMinIdx Pointer to the index of the first min value.

pMax Pointer to the max output result.

pMaxIdx Pointer to the index of the first max value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinMaxIndxGetBufferSize_32u](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.20 NppStatus nppsMinMaxIndx_64f (const Npp64f * pSrc, int nLength, Npp64f * pMin, int * pMinIdx, Npp64f * pMax, int * pMaxIdx, Npp8u * pDeviceBuffer)

64-bit float vector min and max with indices method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMinIdx Pointer to the index of the first min value.

pMax Pointer to the max output result.

pMaxIdx Pointer to the index of the first max value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinMaxIndxGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.21 NppStatus nppsMinMaxIdx_8u (const Npp8u * pSrc, int nLength, Npp8u * pMin, int * pMinIndx, Npp8u * pMax, int * pMaxIndx, Npp8u * pDeviceBuffer)

8-bit char vector min and max with indices method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pMin Pointer to the min output result.

pMinIndx Pointer to the index of the first min value.

pMax Pointer to the max output result.

pMaxIndx Pointer to the index of the first max value.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsMinMaxIdxGetBufferSize_8u](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.145.1.22 NppStatus nppsMinMaxIdxGetBufferSize_16s (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsMinMaxIdx_16s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.23 NppStatus nppsMinMaxIdxGetBufferSize_16u (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsMinMaxIdx_16u.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.24 NppStatus nppsMinMaxIdxGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMaxIdx_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.25 NppStatus nppsMinMaxIdxGetBufferSize_32s (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMaxIdx_32s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.26 NppStatus nppsMinMaxIdxGetBufferSize_32u (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMaxIdx_32u.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.27 NppStatus nppsMinMaxIdxGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMaxIdx_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.145.1.28 NppStatus nppsMinMaxIndxGetBufferSize_8u (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsMinMaxIndx_8u.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.146 Infinity Norm

Functions

- **NppStatus nppsNormInfGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_Inf_32f.
- **NppStatus nppsNorm_Inf_32f** (const Npp32f *pSrc, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
32-bit float vector C norm method
- **NppStatus nppsNormInfGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_Inf_64f.
- **NppStatus nppsNorm_Inf_64f** (const Npp64f *pSrc, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float vector C norm method
- **NppStatus nppsNormInfGetBufferSize_16s32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_Inf_16s32f.
- **NppStatus nppsNorm_Inf_16s32f** (const Npp16s *pSrc, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
16-bit signed short integer vector C norm method, return value is 32-bit float.
- **NppStatus nppsNormInfGetBufferSize_32fc32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_Inf_32fc32f.
- **NppStatus nppsNorm_Inf_32fc32f** (const Npp32fc *pSrc, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
32-bit float complex vector C norm method, return value is 32-bit float.
- **NppStatus nppsNormInfGetBufferSize_64fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_Inf_64fc64f.
- **NppStatus nppsNorm_Inf_64fc64f** (const Npp64fc *pSrc, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float complex vector C norm method, return value is 64-bit float.
- **NppStatus nppsNormInfGetBufferSize_16s32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_Inf_16s32s_Sfs.
- **NppStatus nppsNorm_Inf_16s32s_Sfs** (const Npp16s *pSrc, int nLength, Npp32s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer vector C norm method, return value is 32-bit signed integer.

7.146.1 Function Documentation

7.146.1.1 NppStatus nppsNorm_Inf_16s32f (const Npp16s * *pSrc*, int *nLength*, Npp32f * *pNorm*, Npp8u * *pDeviceBuffer*)

16-bit signed short integer vector C norm method, return value is 32-bit float.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormInfGetBufferSize_16s32f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.146.1.2 NppStatus nppsNorm_Inf_16s32s_Sfs (const Npp16s * *pSrc*, int *nLength*, Npp32s * *pNorm*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

16-bit signed short integer vector C norm method, return value is 32-bit signed integer.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormInfGetBufferSize_16s32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.146.1.3 NppStatus nppsNorm_Inf_32f (const Npp32f * *pSrc*, int *nLength*, Npp32f * *pNorm*, Npp8u * *pDeviceBuffer*)

32-bit float vector C norm method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormInfGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.146.1.4 NppStatus nppsNorm_Inf_32fc32f (const Npp32fc * pSrc, int nLength, Npp32f * pNorm, Npp8u * pDeviceBuffer)

32-bit float complex vector C norm method, return value is 32-bit float.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsNormInfGetBufferSize_32fc32f](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.146.1.5 NppStatus nppsNorm_Inf_64f (const Npp64f * pSrc, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float vector C norm method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsNormInfGetBufferSize_64f](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.146.1.6 NppStatus nppsNorm_Inf_64fc64f (const Npp64fc * pSrc, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float complex vector C norm method, return value is 64-bit float.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsNormInfGetBufferSize_64fc64f](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.146.1.7 NppStatus nppsNormInfGetBufferSize_16s32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_Inf_16s32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.146.1.8 NppStatus nppsNormInfGetBufferSize_16s32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_Inf_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.146.1.9 NppStatus nppsNormInfGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_Inf_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.146.1.10 NppStatus nppsNormInfGetBufferSize_32fc32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_Inf_32fc32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.146.1.11 NppStatus nppsNormInfGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_Inf_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.146.1.12 NppStatus nppsNormInfGetBufferSize_64fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_Inf_64fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.147 L1 Norm

Functions

- **NppStatus nppsNormL1GetBufferSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L1_32f.
- **NppStatus nppsNorm_L1_32f** (const Npp32f *pSrc, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
32-bit float vector L1 norm method
- **NppStatus nppsNormL1GetBufferSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L1_64f.
- **NppStatus nppsNorm_L1_64f** (const Npp64f *pSrc, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float vector L1 norm method
- **NppStatus nppsNormL1GetBufferSize_16s32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L1_16s32f.
- **NppStatus nppsNorm_L1_16s32f** (const Npp16s *pSrc, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
16-bit signed short integer vector L1 norm method, return value is 32-bit float.
- **NppStatus nppsNormL1GetBufferSize_32fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L1_32fc64f.
- **NppStatus nppsNorm_L1_32fc64f** (const Npp32fc *pSrc, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
32-bit float complex vector L1 norm method, return value is 64-bit float.
- **NppStatus nppsNormL1GetBufferSize_64fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L1_64fc64f.
- **NppStatus nppsNorm_L1_64fc64f** (const Npp64fc *pSrc, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float complex vector L1 norm method, return value is 64-bit float.
- **NppStatus nppsNormL1GetBufferSize_16s32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L1_16s32s_Sfs.
- **NppStatus nppsNorm_L1_16s32s_Sfs** (const Npp16s *pSrc, int nLength, Npp32s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer vector L1 norm method, return value is 32-bit signed integer.
- **NppStatus nppsNormL1GetBufferSize_16s64s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L1_16s64s_Sfs.
- **NppStatus nppsNorm_L1_16s64s_Sfs** (const Npp16s *pSrc, int nLength, Npp64s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)

16-bit signed short integer vector L1 norm method, return value is 64-bit signed integer.

7.147.1 Function Documentation

7.147.1.1 NppStatus nppsNorm_L1_16s32f (const Npp16s * *pSrc*, int *nLength*, Npp32f * *pNorm*, Npp8u * *pDeviceBuffer*)

16-bit signed short integer vector L1 norm method, return value is 32-bit float.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the L1 norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsNormL1GetBufferSize_16s32f](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.147.1.2 NppStatus nppsNorm_L1_16s32s_Sfs (const Npp16s * *pSrc*, int *nLength*, Npp32s * *pNorm*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

16-bit signed short integer vector L1 norm method, return value is 32-bit signed integer.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsNormL1GetBufferSize_16s32s_Sfs](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.147.1.3 NppStatus nppsNorm_L1_16s64s_Sfs (const Npp16s * *pSrc*, int *nLength*, Npp64s * *pNorm*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

16-bit signed short integer vector L1 norm method, return value is 64-bit signed integer.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormL1GetBufferSize_16s64s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.147.1.4 NppStatus nppsNorm_L1_32f (const Npp32f * pSrc, int nLength, Npp32f * pNorm, Npp8u * pDeviceBuffer)

32-bit float vector L1 norm method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormL1GetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.147.1.5 NppStatus nppsNorm_L1_32fc64f (const Npp32fc * pSrc, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

32-bit float complex vector L1 norm method, return value is 64-bit float.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormL1GetBufferSize_32fc64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.147.1.6 NppStatus nppsNorm_L1_64f (const Npp64f * pSrc, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float vector L1 norm method

Parameters:

pSrc Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
 Use [nppsNormL1GetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.147.1.7 NppStatus nppsNorm_L1_64fc64f (const Npp64fc * pSrc, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float complex vector L1 norm method, return value is 64-bit float.

Parameters:

pSrc Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
 Use [nppsNormL1GetBufferSize_64fc64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.147.1.8 NppStatus nppsNormL1GetBufferSize_16s32f (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsNorm_L1_16s32f.

Parameters:

nLength Signal Length.
hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.147.1.9 NppStatus nppsNormL1GetBufferSize_16s32s_Sfs (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsNorm_L1_16s32s_Sfs.

Parameters:

nLength Signal Length.
hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.147.1.10 NppStatus nppsNormL1GetBufferSize_16s64s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L1_16s64s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.147.1.11 NppStatus nppsNormL1GetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L1_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.147.1.12 NppStatus nppsNormL1GetBufferSize_32fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L1_32fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.147.1.13 NppStatus nppsNormL1GetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L1_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.147.1.14 NppStatus nppsNormL1GetBufferSize_64fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L1_64fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.148 L2 Norm

Functions

- **NppStatus nppsNormL2GetBufferSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L2_32f.
- **NppStatus nppsNorm_L2_32f** (const Npp32f *pSrc, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
32-bit float vector L2 norm method
- **NppStatus nppsNormL2GetBufferSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L2_64f.
- **NppStatus nppsNorm_L2_64f** (const Npp64f *pSrc, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float vector L2 norm method
- **NppStatus nppsNormL2GetBufferSize_16s32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L2_16s32f.
- **NppStatus nppsNorm_L2_16s32f** (const Npp16s *pSrc, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
16-bit signed short integer vector L2 norm method, return value is 32-bit float.
- **NppStatus nppsNormL2GetBufferSize_32fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L2_32fc64f.
- **NppStatus nppsNorm_L2_32fc64f** (const Npp32fc *pSrc, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
32-bit float complex vector L2 norm method, return value is 64-bit float.
- **NppStatus nppsNormL2GetBufferSize_64fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L2_64fc64f.
- **NppStatus nppsNorm_L2_64fc64f** (const Npp64fc *pSrc, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float complex vector L2 norm method, return value is 64-bit float.
- **NppStatus nppsNormL2GetBufferSize_16s32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L2_16s32s_Sfs.
- **NppStatus nppsNorm_L2_16s32s_Sfs** (const Npp16s *pSrc, int nLength, Npp32s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer vector L2 norm method, return value is 32-bit signed integer.
- **NppStatus nppsNormL2SqrGetBufferSize_16s64s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNorm_L2Sqr_16s64s_Sfs.
- **NppStatus nppsNorm_L2Sqr_16s64s_Sfs** (const Npp16s *pSrc, int nLength, Npp64s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)

16-bit signed short integer vector L2 Square norm method, return value is 64-bit signed integer.

7.148.1 Function Documentation

7.148.1.1 NppStatus nppsNorm_L2_16s32f (const Npp16s * *pSrc*, int *nLength*, Npp32f * *pNorm*, Npp8u * *pDeviceBuffer*)

16-bit signed short integer vector L2 norm method, return value is 32-bit float.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsNormL2GetBufferSize_16s32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.148.1.2 NppStatus nppsNorm_L2_16s32s_Sfs (const Npp16s * *pSrc*, int *nLength*, Npp32s * *pNorm*, int *nScaleFactor*, Npp8u * *pDeviceBuffer*)

16-bit signed short integer vector L2 norm method, return value is 32-bit signed integer.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsNormL2GetBufferSize_16s32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.148.1.3 NppStatus nppsNorm_L2_32f (const Npp32f * *pSrc*, int *nLength*, Npp32f * *pNorm*, Npp8u * *pDeviceBuffer*)

32-bit float vector L2 norm method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsNormL2GetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.148.1.4 NppStatus nppsNorm_L2_32fc64f (const Npp32fc * pSrc, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

32-bit float complex vector L2 norm method, return value is 64-bit float.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsNormL2GetBufferSize_32fc64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.148.1.5 NppStatus nppsNorm_L2_64f (const Npp64f * pSrc, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float vector L2 norm method

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsNormL2GetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.148.1.6 NppStatus nppsNorm_L2_64fc64f (const Npp64fc * pSrc, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float complex vector L2 norm method, return value is 64-bit float.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormL2GetBufferSize_64fc64f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.148.1.7 NppStatus nppsNorm_L2Sqr_16s64s_Sfs (const Npp16s **pSrc*, int *nLength*, Npp64s **pNorm*, int *nScaleFactor*, Npp8u **pDeviceBuffer*)

16-bit signed short integer vector L2 Square norm method, return value is 64-bit signed integer.

Parameters:

pSrc Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormL2SqrGetBufferSize_16s64s_Sfs](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.148.1.8 NppStatus nppsNormL2GetBufferSize_16s32f (int *nLength*, int **hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L2_16s32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.148.1.9 NppStatus nppsNormL2GetBufferSize_16s32s_Sfs (int *nLength*, int **hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L2_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.148.1.10 NppStatus nppsNormL2GetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L2_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.148.1.11 NppStatus nppsNormL2GetBufferSize_32fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L2_32fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.148.1.12 NppStatus nppsNormL2GetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L2_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.148.1.13 NppStatus nppsNormL2GetBufferSize_64fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L2_64fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.148.1.14 NppStatus nppsNormL2SqrGetBufferSize_16s64s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNorm_L2Sqr_16s64s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.149 Infinity Norm Diff

Functions

- **NppStatus nppsNormDiffInfGetBufferSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_Inf_32f.
- **NppStatus nppsNormDiff_Inf_32f** (const Npp32f *pSrc1, const Npp32f *pSrc2, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
32-bit float C norm method on two vectors' difference
- **NppStatus nppsNormDiffInfGetBufferSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_Inf_64f.
- **NppStatus nppsNormDiff_Inf_64f** (const Npp64f *pSrc1, const Npp64f *pSrc2, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float C norm method on two vectors' difference
- **NppStatus nppsNormDiffInfGetBufferSize_16s32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_Inf_16s32f.
- **NppStatus nppsNormDiff_Inf_16s32f** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
16-bit signed short integer C norm method on two vectors' difference, return value is 32-bit float.
- **NppStatus nppsNormDiffInfGetBufferSize_32fc32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_Inf_32fc32f.
- **NppStatus nppsNormDiff_Inf_32fc32f** (const Npp32fc *pSrc1, const Npp32fc *pSrc2, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
32-bit float complex C norm method on two vectors' difference, return value is 32-bit float.
- **NppStatus nppsNormDiffInfGetBufferSize_64fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_Inf_64fc64f.
- **NppStatus nppsNormDiff_Inf_64fc64f** (const Npp64fc *pSrc1, const Npp64fc *pSrc2, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float complex C norm method on two vectors' difference, return value is 64-bit float.
- **NppStatus nppsNormDiffInfGetBufferSize_16s32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_Inf_16s32s_Sfs.
- **NppStatus nppsNormDiff_Inf_16s32s_Sfs** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp32s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer C norm method on two vectors' difference, return value is 32-bit signed integer.

7.149.1 Function Documentation

7.149.1.1 NppStatus nppsNormDiff_Inf_16s32f (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp32f * pNorm, Npp8u * pDeviceBuffer)

16-bit signed short integer C norm method on two vectors' difference, return value is 32-bit float.

Parameters:

- pSrc1* Source Signal Pointer.
- pSrc2* Source Signal Pointer.
- nLength* Signal Length.
- pNorm* Pointer to the norm result.
- pDeviceBuffer* Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsNormDiffInfGetBufferSize_16s32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.149.1.2 NppStatus nppsNormDiff_Inf_16s32s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp32s * pNorm, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer C norm method on two vectors' difference, return value is 32-bit signed integer.

Parameters:

- pSrc1* Source Signal Pointer.
- pSrc2* Source Signal Pointer.
- nLength* Signal Length.
- pNorm* Pointer to the norm result.
- nScaleFactor* Integer Result Scaling.
- pDeviceBuffer* Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsNormDiffInfGetBufferSize_16s32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.149.1.3 NppStatus nppsNormDiff_Inf_32f (const Npp32f * pSrc1, const Npp32f * pSrc2, int nLength, Npp32f * pNorm, Npp8u * pDeviceBuffer)

32-bit float C norm method on two vectors' difference

Parameters:

- pSrc1* Source Signal Pointer.
- pSrc2* Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffInfGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.149.1.4 NppStatus nppsNormDiff_Inf_32fc32f (const Npp32fc **pSrc1*, const Npp32fc **pSrc2*, int *nLength*, Npp32f **pNorm*, Npp8u **pDeviceBuffer*)

32-bit float complex C norm method on two vectors' difference, return value is 32-bit float.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffInfGetBufferSize_32fc32f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.149.1.5 NppStatus nppsNormDiff_Inf_64f (const Npp64f **pSrc1*, const Npp64f **pSrc2*, int *nLength*, Npp64f **pNorm*, Npp8u **pDeviceBuffer*)

64-bit float C norm method on two vectors' difference

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffInfGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.149.1.6 NppStatus nppsNormDiff_Inf_64fc64f (const Npp64fc * pSrc1, const Npp64fc * pSrc2, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float complex C norm method on two vectors' difference, return value is 64-bit float.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsNormDiffInfGetBufferSize_64fc64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.149.1.7 NppStatus nppsNormDiffInfGetBufferSize_16s32f (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsNormDiff_Inf_16s32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.149.1.8 NppStatus nppsNormDiffInfGetBufferSize_16s32s_Sfs (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsNormDiff_Inf_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.149.1.9 NppStatus nppsNormDiffInfGetBufferSize_32f (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsNormDiff_Inf_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.149.1.10 NppStatus nppsNormDiffInfGetBufferSize_32fc32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_Inf_32fc32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.149.1.11 NppStatus nppsNormDiffInfGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_Inf_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.149.1.12 NppStatus nppsNormDiffInfGetBufferSize_64fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_Inf_64fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.150 L1 Norm Diff

Functions

- **NppStatus nppsNormDiffL1GetBufferSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L1_32f.
- **NppStatus nppsNormDiff_L1_32f** (const Npp32f *pSrc1, const Npp32f *pSrc2, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
32-bit float L1 norm method on two vectors' difference
- **NppStatus nppsNormDiffL1GetBufferSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L1_64f.
- **NppStatus nppsNormDiff_L1_64f** (const Npp64f *pSrc1, const Npp64f *pSrc2, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float L1 norm method on two vectors' difference
- **NppStatus nppsNormDiffL1GetBufferSize_16s32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L1_16s32f.
- **NppStatus nppsNormDiff_L1_16s32f** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
16-bit signed short integer L1 norm method on two vectors' difference, return value is 32-bit float.
- **NppStatus nppsNormDiffL1GetBufferSize_32fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L1_32fc64f.
- **NppStatus nppsNormDiff_L1_32fc64f** (const Npp32fc *pSrc1, const Npp32fc *pSrc2, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
32-bit float complex L1 norm method on two vectors' difference, return value is 64-bit float.
- **NppStatus nppsNormDiffL1GetBufferSize_64fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L1_64fc64f.
- **NppStatus nppsNormDiff_L1_64fc64f** (const Npp64fc *pSrc1, const Npp64fc *pSrc2, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float complex L1 norm method on two vectors' difference, return value is 64-bit float.
- **NppStatus nppsNormDiffL1GetBufferSize_16s32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L1_16s32s_Sfs.
- **NppStatus nppsNormDiff_L1_16s32s_Sfs** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp32s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer L1 norm method on two vectors' difference, return value is 32-bit signed integer.
- **NppStatus nppsNormDiffL1GetBufferSize_16s64s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L1_16s64s_Sfs.
- **NppStatus nppsNormDiff_L1_16s64s_Sfs** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp64s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)

16-bit signed short integer L1 norm method on two vectors' difference, return value is 64-bit signed integer.

7.150.1 Function Documentation

7.150.1.1 NppStatus nppsNormDiff_L1_16s32f (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp32f * pNorm, Npp8u * pDeviceBuffer)

16-bit signed short integer L1 norm method on two vectors' difference, return value is 32-bit float.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the L1 norm result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsNormDiffL1GetBufferSize_16s32f](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.150.1.2 NppStatus nppsNormDiff_L1_16s32s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp32s * pNorm, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer L1 norm method on two vectors' difference, return value is 32-bit signed integer.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer..

nLength Signal Length.

pNorm Pointer to the norm result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsNormDiffL1GetBufferSize_16s32s_Sfs](#) to determine the minium number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.150.1.3 NppStatus nppsNormDiff_L1_16s64s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp64s * pNorm, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer L1 norm method on two vectors' difference, return value is 64-bit signed integer.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
nScaleFactor Integer Result Scaling.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
 Use [nppsNormDiffL1GetBufferSize_16s64s_Sfs](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.150.1.4 NppStatus nppsNormDiff_L1_32f (const Npp32f * pSrc1, const Npp32f * pSrc2, int nLength, Npp32f * pNorm, Npp8u * pDeviceBuffer)

32-bit float L1 norm method on two vectors' difference

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
 Use [nppsNormDiffL1GetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.150.1.5 NppStatus nppsNormDiff_L1_32fc64f (const Npp32fc * pSrc1, const Npp32fc * pSrc2, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

32-bit float complex L1 norm method on two vectors' difference, return value is 64-bit float.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
 Use [nppsNormDiffL1GetBufferSize_32fc64f](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.150.1.6 NppStatus nppsNormDiff_L1_64f (const Npp64f * pSrc1, const Npp64f * pSrc2, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float L1 norm method on two vectors' difference

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffL1GetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.150.1.7 NppStatus nppsNormDiff_L1_64fc64f (const Npp64fc * pSrc1, const Npp64fc * pSrc2, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float complex L1 norm method on two vectors' difference, return value is 64-bit float.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffL1GetBufferSize_64fc64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.150.1.8 NppStatus nppsNormDiffL1GetBufferSize_16s32f (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsNormDiff_L1_16s32f.

Parameters:

nLength Signal Length.
hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.150.1.9 NppStatus nppsNormDiffL1GetBufferSize_16s32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L1_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.150.1.10 NppStatus nppsNormDiffL1GetBufferSize_16s64s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L1_16s64s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.150.1.11 NppStatus nppsNormDiffL1GetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L1_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.150.1.12 NppStatus nppsNormDiffL1GetBufferSize_32fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L1_32fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.150.1.13 NppStatus nppsNormDiffL1GetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L1_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.150.1.14 NppStatus nppsNormDiffL1GetBufferSize_64fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L1_64fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.151 L2 Norm Diff

Functions

- **NppStatus nppsNormDiffL2GetBufferSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L2_32f.
- **NppStatus nppsNormDiff_L2_32f** (const Npp32f *pSrc1, const Npp32f *pSrc2, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
32-bit float L2 norm method on two vectors' difference
- **NppStatus nppsNormDiffL2GetBufferSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L2_64f.
- **NppStatus nppsNormDiff_L2_64f** (const Npp64f *pSrc1, const Npp64f *pSrc2, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float L2 norm method on two vectors' difference
- **NppStatus nppsNormDiffL2GetBufferSize_16s32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L2_16s32f.
- **NppStatus nppsNormDiff_L2_16s32f** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp32f *pNorm, Npp8u *pDeviceBuffer)
16-bit signed short integer L2 norm method on two vectors' difference, return value is 32-bit float.
- **NppStatus nppsNormDiffL2GetBufferSize_32fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L2_32fc64f.
- **NppStatus nppsNormDiff_L2_32fc64f** (const Npp32fc *pSrc1, const Npp32fc *pSrc2, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
32-bit float complex L2 norm method on two vectors' difference, return value is 64-bit float.
- **NppStatus nppsNormDiffL2GetBufferSize_64fc64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L2_64fc64f.
- **NppStatus nppsNormDiff_L2_64fc64f** (const Npp64fc *pSrc1, const Npp64fc *pSrc2, int nLength, Npp64f *pNorm, Npp8u *pDeviceBuffer)
64-bit float complex L2 norm method on two vectors' difference, return value is 64-bit float.
- **NppStatus nppsNormDiffL2GetBufferSize_16s32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L2_16s32s_Sfs.
- **NppStatus nppsNormDiff_L2_16s32s_Sfs** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp32s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer L2 norm method on two vectors' difference, return value is 32-bit signed integer.
- **NppStatus nppsNormDiffL2SqrGetBufferSize_16s64s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsNormDiff_L2Sqr_16s64s_Sfs.
- **NppStatus nppsNormDiff_L2Sqr_16s64s_Sfs** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp64s *pNorm, int nScaleFactor, Npp8u *pDeviceBuffer)

16-bit signed short integer L2 Square norm method on two vectors' difference, return value is 64-bit signed integer.

7.151.1 Function Documentation

7.151.1.1 NppStatus nppsNormDiff_L2_16s32f (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp32f * pNorm, Npp8u * pDeviceBuffer)

16-bit signed short integer L2 norm method on two vectors' difference, return value is 32-bit float.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffL2GetBufferSize_16s32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.151.1.2 NppStatus nppsNormDiff_L2_16s32s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp32s * pNorm, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer L2 norm method on two vectors' difference, return value is 32-bit signed integer.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pNorm Pointer to the norm result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffL2GetBufferSize_16s32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.151.1.3 NppStatus nppsNormDiff_L2_32f (const Npp32f * pSrc1, const Npp32f * pSrc2, int nLength, Npp32f * pNorm, Npp8u * pDeviceBuffer)

32-bit float L2 norm method on two vectors' difference

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
 Use [nppsNormDiffL2GetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.151.1.4 NppStatus nppsNormDiff_L2_32fc64f (const Npp32fc * pSrc1, const Npp32fc * pSrc2, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

32-bit float complex L2 norm method on two vectors' difference, return value is 64-bit float.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
 Use [nppsNormDiffL2GetBufferSize_32fc64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.151.1.5 NppStatus nppsNormDiff_L2_64f (const Npp64f * pSrc1, const Npp64f * pSrc2, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float L2 norm method on two vectors' difference

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
 Use [nppsNormDiffL2GetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.151.1.6 NppStatus nppsNormDiff_L2_64fc64f (const Npp64fc * pSrc1, const Npp64fc * pSrc2, int nLength, Npp64f * pNorm, Npp8u * pDeviceBuffer)

64-bit float complex L2 norm method on two vectors' difference, return value is 64-bit float.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffL2GetBufferSize_64fc64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.151.1.7 NppStatus nppsNormDiff_L2Sqr_16s64s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp64s * pNorm, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer L2 Square norm method on two vectors' difference, return value is 64-bit signed integer.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pNorm Pointer to the norm result.
nScaleFactor Integer Result Scaling.
pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.
Use [nppsNormDiffL2SqrGetBufferSize_16s64s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.151.1.8 NppStatus nppsNormDiffL2GetBufferSize_16s32f (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsNormDiff_L2_16s32f.

Parameters:

nLength Signal Length.
hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.151.1.9 NppStatus nppsNormDiffL2GetBufferSize_16s32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L2_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.151.1.10 NppStatus nppsNormDiffL2GetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L2_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.151.1.11 NppStatus nppsNormDiffL2GetBufferSize_32fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L2_32fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.151.1.12 NppStatus nppsNormDiffL2GetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L2_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.151.1.13 NppStatus nppsNormDiffL2GetBufferSize_64fc64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L2_64fc64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.151.1.14 NppStatus nppsNormDiffL2SqrGetBufferSize_16s64s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsNormDiff_L2Sqr_16s64s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152 Dot Product

Functions

- **NppStatus nppsDotProdGetSize_32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32f.
- **NppStatus nppsDotProd_32f** (const Npp32f *pSrc1, const Npp32f *pSrc2, int nLength, Npp32f *pDp, Npp8u *pDeviceBuffer)
32-bit float dot product method, return value is 32-bit float.
- **NppStatus nppsDotProdGetSize_32fc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32fc.
- **NppStatus nppsDotProd_32fc** (const Npp32fc *pSrc1, const Npp32fc *pSrc2, int nLength, Npp32fc *pDp, Npp8u *pDeviceBuffer)
32-bit float complex dot product method, return value is 32-bit float complex.
- **NppStatus nppsDotProdGetSize_32f32fc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32f32fc.
- **NppStatus nppsDotProd_32f32fc** (const Npp32f *pSrc1, const Npp32fc *pSrc2, int nLength, Npp32fc *pDp, Npp8u *pDeviceBuffer)
32-bit float and 32-bit float complex dot product method, return value is 32-bit float complex.
- **NppStatus nppsDotProdGetSize_32f64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32f64f.
- **NppStatus nppsDotProd_32f64f** (const Npp32f *pSrc1, const Npp32f *pSrc2, int nLength, Npp64f *pDp, Npp8u *pDeviceBuffer)
32-bit float dot product method, return value is 64-bit float.
- **NppStatus nppsDotProdGetSize_32fc64fc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32fc64fc.
- **NppStatus nppsDotProd_32fc64fc** (const Npp32fc *pSrc1, const Npp32fc *pSrc2, int nLength, Npp64fc *pDp, Npp8u *pDeviceBuffer)
32-bit float complex dot product method, return value is 64-bit float complex.
- **NppStatus nppsDotProdGetSize_32f32fc64fc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32f32fc64fc.
- **NppStatus nppsDotProd_32f32fc64fc** (const Npp32f *pSrc1, const Npp32fc *pSrc2, int nLength, Npp64fc *pDp, Npp8u *pDeviceBuffer)
32-bit float and 32-bit float complex dot product method, return value is 64-bit float complex.
- **NppStatus nppsDotProdGetSize_64f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_64f.
- **NppStatus nppsDotProd_64f** (const Npp64f *pSrc1, const Npp64f *pSrc2, int nLength, Npp64f *pDp, Npp8u *pDeviceBuffer)

64-bit float dot product method, return value is 64-bit float.

- **NppStatus nppsDotProdGetBufferSize_64fc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_64fc.
- **NppStatus nppsDotProd_64fc** (const Npp64fc *pSrc1, const Npp64fc *pSrc2, int nLength, Npp64fc *pDp, Npp8u *pDeviceBuffer)
64-bit float complex dot product method, return value is 64-bit float complex.
- **NppStatus nppsDotProdGetBufferSize_64f64fc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_64f64fc.
- **NppStatus nppsDotProd_64f64fc** (const Npp64f *pSrc1, const Npp64fc *pSrc2, int nLength, Npp64fc *pDp, Npp8u *pDeviceBuffer)
64-bit float and 64-bit float complex dot product method, return value is 64-bit float complex.
- **NppStatus nppsDotProdGetBufferSize_16s64s** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s64s.
- **NppStatus nppsDotProd_16s64s** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp64s *pDp, Npp8u *pDeviceBuffer)
16-bit signed short integer dot product method, return value is 64-bit signed integer.
- **NppStatus nppsDotProdGetBufferSize_16sc64sc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16sc64sc.
- **NppStatus nppsDotProd_16sc64sc** (const Npp16sc *pSrc1, const Npp16sc *pSrc2, int nLength, Npp64sc *pDp, Npp8u *pDeviceBuffer)
16-bit signed short integer complex dot product method, return value is 64-bit signed integer complex.
- **NppStatus nppsDotProdGetBufferSize_16s16sc64sc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s16sc64sc.
- **NppStatus nppsDotProd_16s16sc64sc** (const Npp16s *pSrc1, const Npp16sc *pSrc2, int nLength, Npp64sc *pDp, Npp8u *pDeviceBuffer)
16-bit signed short integer and 16-bit signed short integer short dot product method, return value is 64-bit signed integer complex.
- **NppStatus nppsDotProdGetBufferSize_16s32f** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s32f.
- **NppStatus nppsDotProd_16s32f** (const Npp16s *pSrc1, const Npp16s *pSrc2, int nLength, Npp32f *pDp, Npp8u *pDeviceBuffer)
16-bit signed short integer dot product method, return value is 32-bit float.
- **NppStatus nppsDotProdGetBufferSize_16sc32fc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16sc32fc.
- **NppStatus nppsDotProd_16sc32fc** (const Npp16sc *pSrc1, const Npp16sc *pSrc2, int nLength, Npp32fc *pDp, Npp8u *pDeviceBuffer)
16-bit signed short integer complex dot product method, return value is 32-bit float complex.

- **NppStatus nppsDotProdGetBufferSize_16s16sc32fc** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s16sc32fc.
- **NppStatus nppsDotProd_16s16sc32fc** (const **Npp16s** *pSrc1, const **Npp16sc** *pSrc2, int nLength, **Npp32fc** *pDp, **Npp8u** *pDeviceBuffer)
16-bit signed short integer and 16-bit signed short integer complex dot product method, return value is 32-bit float complex.
- **NppStatus nppsDotProdGetBufferSize_16s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s_Sfs.
- **NppStatus nppsDotProd_16s_Sfs** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, int nLength, **Npp16s** *pDp, int nScaleFactor, **Npp8u** *pDeviceBuffer)
16-bit signed short integer dot product method, return value is 16-bit signed short integer.
- **NppStatus nppsDotProdGetBufferSize_16sc_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16sc_Sfs.
- **NppStatus nppsDotProd_16sc_Sfs** (const **Npp16sc** *pSrc1, const **Npp16sc** *pSrc2, int nLength, **Npp16sc** *pDp, int nScaleFactor, **Npp8u** *pDeviceBuffer)
16-bit signed short integer complex dot product method, return value is 16-bit signed short integer complex.
- **NppStatus nppsDotProdGetBufferSize_32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32s_Sfs.
- **NppStatus nppsDotProd_32s_Sfs** (const **Npp32s** *pSrc1, const **Npp32s** *pSrc2, int nLength, **Npp32s** *pDp, int nScaleFactor, **Npp8u** *pDeviceBuffer)
32-bit signed integer dot product method, return value is 32-bit signed integer.
- **NppStatus nppsDotProdGetBufferSize_32sc_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32sc_Sfs.
- **NppStatus nppsDotProd_32sc_Sfs** (const **Npp32sc** *pSrc1, const **Npp32sc** *pSrc2, int nLength, **Npp32sc** *pDp, int nScaleFactor, **Npp8u** *pDeviceBuffer)
32-bit signed integer complex dot product method, return value is 32-bit signed integer complex.
- **NppStatus nppsDotProdGetBufferSize_16s32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s32s_Sfs.
- **NppStatus nppsDotProd_16s32s_Sfs** (const **Npp16s** *pSrc1, const **Npp16s** *pSrc2, int nLength, **Npp32s** *pDp, int nScaleFactor, **Npp8u** *pDeviceBuffer)
16-bit signed short integer dot product method, return value is 32-bit signed integer.
- **NppStatus nppsDotProdGetBufferSize_16s16sc32sc_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s16sc32sc_Sfs.
- **NppStatus nppsDotProd_16s16sc32sc_Sfs** (const **Npp16s** *pSrc1, const **Npp16sc** *pSrc2, int nLength, **Npp32sc** *pDp, int nScaleFactor, **Npp8u** *pDeviceBuffer)
16-bit signed short integer and 16-bit signed short integer complex dot product method, return value is 32-bit signed integer complex.

- **NppStatus nppsDotProdGetSize_16s32s32s_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s32s32s_Sfs.
- **NppStatus nppsDotProd_16s32s32s_Sfs** (const Npp16s *pSrc1, const Npp32s *pSrc2, int nLength, Npp32s *pDp, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer and 32-bit signed integer dot product method, return value is 32-bit signed integer.
- **NppStatus nppsDotProdGetSize_16s16sc_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16s16sc_Sfs.
- **NppStatus nppsDotProd_16s16sc_Sfs** (const Npp16s *pSrc1, const Npp16sc *pSrc2, int nLength, Npp16sc *pDp, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer and 16-bit signed short integer complex dot product method, return value is 16-bit signed short integer complex.
- **NppStatus nppsDotProdGetSize_16sc32sc_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_16sc32sc_Sfs.
- **NppStatus nppsDotProd_16sc32sc_Sfs** (const Npp16sc *pSrc1, const Npp16sc *pSrc2, int nLength, Npp32sc *pDp, int nScaleFactor, Npp8u *pDeviceBuffer)
16-bit signed short integer complex dot product method, return value is 32-bit signed integer complex.
- **NppStatus nppsDotProdGetSize_32s32sc_Sfs** (int nLength, int *hpBufferSize)
Device-buffer size (in bytes) for nppsDotProd_32s32sc_Sfs.
- **NppStatus nppsDotProd_32s32sc_Sfs** (const Npp32s *pSrc1, const Npp32sc *pSrc2, int nLength, Npp32sc *pDp, int nScaleFactor, Npp8u *pDeviceBuffer)
32-bit signed short integer and 32-bit signed short integer complex dot product method, return value is 32-bit signed integer complex.

7.152.1 Function Documentation

7.152.1.1 NppStatus nppsDotProd_16s16sc32fc (const Npp16s * pSrc1, const Npp16sc * pSrc2, int nLength, Npp32fc * pDp, Npp8u * pDeviceBuffer)

16-bit signed short integer and 16-bit signed short integer complex dot product method, return value is 32-bit float complex.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.

Use **nppsDotProdGetSize_16s16sc32fc** to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.152.1.2 NppStatus nppsDotProd_16s16sc32sc_Sfs (const Npp16s * pSrc1, const Npp16sc * pSrc2, int nLength, Npp32sc * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer and 16-bit signed short integer complex dot product method, return value is 32-bit signed integer complex.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsDotProdGetBufferSize_16s16sc32sc_Sfs](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.152.1.3 NppStatus nppsDotProd_16s16sc64sc (const Npp16s * pSrc1, const Npp16sc * pSrc2, int nLength, Npp64sc * pDp, Npp8u * pDeviceBuffer)

16-bit signed short integer and 16-bit signed short integer short dot product method, return value is 64-bit signed integer complex.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsDotProdGetBufferSize_16s16sc64sc](#) to determine the minimum number of bytes required.

Returns:

Signal Data Related Error Codes, Length Related Error Codes.

7.152.1.4 NppStatus nppsDotProd_16s16sc_Sfs (const Npp16s * pSrc1, const Npp16sc * pSrc2, int nLength, Npp16sc * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer and 16-bit signed short integer complex dot product method, return value is 16-bit signed short integer complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
nScaleFactor Integer Result Scaling.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_16s16sc_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.5 NppStatus nppsDotProd_16s32f (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp32f * pDp, Npp8u * pDeviceBuffer)

16-bit signed short integer dot product method, return value is 32-bit float.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_16s32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.6 NppStatus nppsDotProd_16s32s32s_Sfs (const Npp16s * pSrc1, const Npp32s * pSrc2, int nLength, Npp32s * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer and 32-bit signed integer dot product method, return value is 32-bit signed integer.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsDotProdGetBufferSize_16s32s32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.7 NppStatus nppsDotProd_16s32s_Sfs (const Npp16s **pSrc1*, const Npp16s **pSrc2*, int *nLength*, Npp32s **pDp*, int *nScaleFactor*, Npp8u **pDeviceBuffer*)

16-bit signed short integer dot product method, return value is 32-bit signed integer.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsDotProdGetBufferSize_16s32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.8 NppStatus nppsDotProd_16s64s (const Npp16s **pSrc1*, const Npp16s **pSrc2*, int *nLength*, Npp64s **pDp*, Npp8u **pDeviceBuffer*)

16-bit signed short integer dot product method, return value is 64-bit signed integer.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsDotProdGetBufferSize_16s64s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.9 NppStatus nppsDotProd_16s_Sfs (const Npp16s * pSrc1, const Npp16s * pSrc2, int nLength, Npp16s * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer dot product method, return value is 16-bit signed short integer.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
nScaleFactor Integer Result Scaling.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_16s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.10 NppStatus nppsDotProd_16sc32fc (const Npp16sc * pSrc1, const Npp16sc * pSrc2, int nLength, Npp32fc * pDp, Npp8u * pDeviceBuffer)

16-bit signed short integer complex dot product method, return value is 32-bit float complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_16sc32fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.11 NppStatus nppsDotProd_16sc32sc_Sfs (const Npp16sc * pSrc1, const Npp16sc * pSrc2, int nLength, Npp32sc * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer complex dot product method, return value is 32-bit signed integer complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_16sc32sc_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.12 NppStatus nppsDotProd_16sc64sc (const Npp16sc * pSrc1, const Npp16sc * pSrc2, int nLength, Npp64sc * pDp, Npp8u * pDeviceBuffer)

16-bit signed short integer complex dot product method, return value is 64-bit signed integer complex.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsDotProdGetBufferSize_16sc64sc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.13 NppStatus nppsDotProd_16sc_Sfs (const Npp16sc * pSrc1, const Npp16sc * pSrc2, int nLength, Npp16sc * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

16-bit signed short integer complex dot product method, return value is 16-bit signed short integer complex.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsDotProdGetBufferSize_16sc_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.14 NppStatus nppsDotProd_32f (const Npp32f * pSrc1, const Npp32f * pSrc2, int nLength, Npp32f * pDp, Npp8u * pDeviceBuffer)

32-bit float dot product method, return value is 32-bit float.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.15 NppStatus nppsDotProd_32f32fc (const Npp32f * pSrc1, const Npp32fc * pSrc2, int nLength, Npp32fc * pDp, Npp8u * pDeviceBuffer)

32-bit float and 32-bit float complex dot product method, return value is 32-bit float complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_32f32fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.16 NppStatus nppsDotProd_32f32fc64fc (const Npp32f * pSrc1, const Npp32fc * pSrc2, int nLength, Npp64fc * pDp, Npp8u * pDeviceBuffer)

32-bit float and 32-bit float complex dot product method, return value is 64-bit float complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_32f32fc64fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.17 NppStatus nppsDotProd_32f64f (const Npp32f * pSrc1, const Npp32f * pSrc2, int nLength, Npp64f * pDp, Npp8u * pDeviceBuffer)

32-bit float dot product method, return value is 64-bit float.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_32f64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.18 NppStatus nppsDotProd_32fc (const Npp32fc * pSrc1, const Npp32fc * pSrc2, int nLength, Npp32fc * pDp, Npp8u * pDeviceBuffer)

32-bit float complex dot product method, return value is 32-bit float complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_32fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.19 NppStatus nppsDotProd_32fc64fc (const Npp32fc * pSrc1, const Npp32fc * pSrc2, int nLength, Npp64fc * pDp, Npp8u * pDeviceBuffer)

32-bit float complex dot product method, return value is 64-bit float complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_32fc64fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.20 NppStatus nppsDotProd_32s32sc_Sfs (const Npp32s * pSrc1, const Npp32sc * pSrc2, int nLength, Npp32sc * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

32-bit signed short integer and 32-bit signed short integer complex dot product method, return value is 32-bit signed integer complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
nScaleFactor Integer Result Scaling.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_32s32sc_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.21 NppStatus nppsDotProd_32s_Sfs (const Npp32s * pSrc1, const Npp32s * pSrc2, int nLength, Npp32s * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

32-bit signed integer dot product method, return value is 32-bit signed integer.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.
nLength Signal Length.
pDp Pointer to the dot product result.
nScaleFactor Integer Result Scaling.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsDotProdGetBufferSize_32s_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.22 NppStatus nppsDotProd_32sc_Sfs (const Npp32sc * pSrc1, const Npp32sc * pSrc2, int nLength, Npp32sc * pDp, int nScaleFactor, Npp8u * pDeviceBuffer)

32-bit signed integer complex dot product method, return value is 32-bit signed integer complex.

Parameters:

pSrc1 Source Signal Pointer.
pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

nScaleFactor Integer Result Scaling.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsDotProdGetBufferSize_32sc_Sfs](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.23 NppStatus nppsDotProd_64f (const Npp64f * pSrc1, const Npp64f * pSrc2, int nLength, Npp64f * pDp, Npp8u * pDeviceBuffer)

64-bit float dot product method, return value is 64-bit float.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsDotProdGetBufferSize_64f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.24 NppStatus nppsDotProd_64f64fc (const Npp64f * pSrc1, const Npp64fc * pSrc2, int nLength, Npp64fc * pDp, Npp8u * pDeviceBuffer)

64-bit float and 64-bit float complex dot product method, return value is 64-bit float complex.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

pDeviceBuffer Pointer to the required device memory allocation, Scratch Buffer and Host Pointer.

Use [nppsDotProdGetBufferSize_64f64fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.25 NppStatus nppsDotProd_64fc (const Npp64fc * pSrc1, const Npp64fc * pSrc2, int nLength, Npp64fc * pDp, Npp8u * pDeviceBuffer)

64-bit float complex dot product method, return value is 64-bit float complex.

Parameters:

pSrc1 Source Signal Pointer.

pSrc2 Source Signal Pointer.

nLength Signal Length.

pDp Pointer to the dot product result.

pDeviceBuffer Pointer to the required device memory allocation, **Scratch Buffer and Host Pointer**.
Use [nppsDotProdGetBufferSize_64fc](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.152.1.26 NppStatus nppsDotProdGetBufferSize_16s16sc32fc (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsDotProd_16s16sc32fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.27 NppStatus nppsDotProdGetBufferSize_16s16sc32sc_Sfs (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsDotProd_16s16sc32sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.28 NppStatus nppsDotProdGetBufferSize_16s16sc64sc (int nLength, int * hpBufferSize)

Device-buffer size (in bytes) for nppsDotProd_16s16sc64sc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.29 NppStatus nppsDotProdGetBufferSize_16s16sc_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16s16sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.30 NppStatus nppsDotProdGetBufferSize_16s32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16s32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.31 NppStatus nppsDotProdGetBufferSize_16s32s32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16s32s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.32 NppStatus nppsDotProdGetBufferSize_16s32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16s32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.33 NppStatus nppsDotProdGetBufferSize_16s64s (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16s64s.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.34 NppStatus nppsDotProdGetBufferSize_16s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.35 NppStatus nppsDotProdGetBufferSize_16sc32fc (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16sc32fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.36 NppStatus nppsDotProdGetBufferSize_16sc32sc_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16sc32sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.37 NppStatus nppsDotProdGetBufferSize_16sc64sc (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16sc64sc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.38 NppStatus nppsDotProdGetBufferSize_16sc_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_16sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.39 NppStatus nppsDotProdGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.40 NppStatus nppsDotProdGetBufferSize_32f32fc (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32f32fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.41 NppStatus nppsDotProdGetBufferSize_32f32fc64fc (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32f32fc64fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.42 NppStatus nppsDotProdGetBufferSize_32f64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32f64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.43 NppStatus nppsDotProdGetBufferSize_32fc (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.44 NppStatus nppsDotProdGetBufferSize_32fc64fc (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32fc64fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.45 NppStatus nppsDotProdGetBufferSize_32s32sc_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32s32sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.46 NppStatus nppsDotProdGetBufferSize_32s_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32s_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.47 NppStatus nppsDotProdGetBufferSize_32sc_Sfs (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_32sc_Sfs.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: hpBufferSize is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.48 NppStatus nppsDotProdGetBufferSize_64f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_64f.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.49 NppStatus nppsDotProdGetBufferSize_64f64fc (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_64f64fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.152.1.50 NppStatus nppsDotProdGetBufferSize_64fc (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsDotProd_64fc.

Parameters:

nLength Signal Length.

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.153 Count In Range

Functions

- [NppStatus nppsCountInRangeGetBufferSize_32s](#) (int *nLength*, int **hpBufferSize*)
Device-buffer size (in bytes) for nppsCountInRange_32s.
- [NppStatus nppsCountInRange_32s](#) (const Npp32s **pSrc*, int *nLength*, int **pCounts*, Npp32s *nLowerBound*, Npp32s *nUpperBound*, Npp8u **pDeviceBuffer*)
Computes the number of elements whose values fall into the specified range on a 32-bit signed integer array.

7.153.1 Function Documentation

7.153.1.1 NppStatus nppsCountInRange_32s (const Npp32s **pSrc*, int *nLength*, int **pCounts*, Npp32s *nLowerBound*, Npp32s *nUpperBound*, Npp8u **pDeviceBuffer*)

Computes the number of elements whose values fall into the specified range on a 32-bit signed integer array.

Parameters:

- pSrc* Source Signal Pointer.
nLength Signal Length.
pCounts Pointer to the number of elements.
nLowerBound Lower bound of the specified range.
nUpperBound Upper bound of the specified range.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
 Use [nppsCountInRangeGetBufferSize_32s](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.153.1.2 NppStatus nppsCountInRangeGetBufferSize_32s (int *nLength*, int **hpBufferSize*)

Device-buffer size (in bytes) for nppsCountInRange_32s.

Parameters:

- nLength* Signal Length.
hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.154 Count Zero Crossings

Functions

- **NppStatus nppsZeroCrossingGetBufferSize_16s32f (int nLength, int *hpBufferSize)**
Device-buffer size (in bytes) for nppsZeroCrossing_16s32f.
- **NppStatus nppsZeroCrossing_16s32f (const Npp16s *pSrc, int nLength, Npp32f *pValZC, NppsZCType tZCType, Npp8u *pDeviceBuffer)**
16-bit signed short integer zero crossing method, return value is 32-bit floating point.
- **NppStatus nppsZeroCrossingGetBufferSize_32f (int nLength, int *hpBufferSize)**
Device-buffer size (in bytes) for nppsZeroCrossing_32f.
- **NppStatus nppsZeroCrossing_32f (const Npp32f *pSrc, int nLength, Npp32f *pValZC, NppsZCType tZCType, Npp8u *pDeviceBuffer)**
32-bit floating-point zero crossing method, return value is 32-bit floating point.

7.154.1 Function Documentation

7.154.1.1 NppStatus nppsZeroCrossing_16s32f (const Npp16s * pSrc, int nLength, Npp32f * pValZC, NppsZCType tZCType, Npp8u * pDeviceBuffer)

16-bit signed short integer zero crossing method, return value is 32-bit floating point.

Parameters:

pSrc Source Signal Pointer.
nLength Signal Length.
pValZC Pointer to the output result.
tZCType Type of the zero crossing measure: nppZCR, nppZCXor or nppZCC.
pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).
Use [nppsZeroCrossingGetBufferSize_16s32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.154.1.2 NppStatus nppsZeroCrossing_32f (const Npp32f * pSrc, int nLength, Npp32f * pValZC, NppsZCType tZCType, Npp8u * pDeviceBuffer)

32-bit floating-point zero crossing method, return value is 32-bit floating point.

Parameters:

pSrc Source Signal Pointer.
nLength Signal Length.
pValZC Pointer to the output result.

tZCType Type of the zero crossing measure: nppZCR, nppZCXor or nppZCC.

pDeviceBuffer Pointer to the required device memory allocation, [Scratch Buffer and Host Pointer](#).

Use [nppsZeroCrossingGetBufferSize_32f](#) to determine the minimum number of bytes required.

Returns:

[Signal Data Related Error Codes](#), [Length Related Error Codes](#).

7.154.1.3 NppStatus nppsZeroCrossingGetBufferSize_16s32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsZeroCrossing_16s32f.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.154.1.4 NppStatus nppsZeroCrossingGetBufferSize_32f (int *nLength*, int * *hpBufferSize*)

Device-buffer size (in bytes) for nppsZeroCrossing_32f.

Parameters:

nLength [Signal Length](#).

hpBufferSize Required buffer size. Important: *hpBufferSize* is a *host pointer*.

Returns:

NPP_SUCCESS

7.155 Memory Management

Chapter 8

Data Structure Documentation

8.1 Npp16sc Struct Reference

Complex Number This struct represents a short complex number.

```
#include <nppdefs.h>
```

Data Fields

- [Npp16s re](#)
Real part.
- [Npp16s im](#)
Imaginary part.

8.1.1 Detailed Description

Complex Number This struct represents a short complex number.

8.1.2 Field Documentation

8.1.2.1 Npp16s Npp16sc::im

Imaginary part.

8.1.2.2 Npp16s Npp16sc::re

Real part.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.2 Npp16uc Struct Reference

Complex Number This struct represents an unsigned short complex number.

```
#include <nppdefs.h>
```

Data Fields

- [Npp16u re](#)
Real part.
- [Npp16u im](#)
Imaginary part.

8.2.1 Detailed Description

Complex Number This struct represents an unsigned short complex number.

8.2.2 Field Documentation

8.2.2.1 Npp16u Npp16uc::im

Imaginary part.

8.2.2.2 Npp16u Npp16uc::re

Real part.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.3 Npp32fc Struct Reference

Complex Number This struct represents a single floating-point complex number.

```
#include <nppdefs.h>
```

Data Fields

- **Npp32f re**
Real part.
- **Npp32f im**
Imaginary part.

8.3.1 Detailed Description

Complex Number This struct represents a single floating-point complex number.

8.3.2 Field Documentation

8.3.2.1 Npp32f Npp32fc::im

Imaginary part.

8.3.2.2 Npp32f Npp32fc::re

Real part.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.4 Npp32sc Struct Reference

Complex Number This struct represents a signed int complex number.

```
#include <nppdefs.h>
```

Data Fields

- [Npp32s re](#)
Real part.
- [Npp32s im](#)
Imaginary part.

8.4.1 Detailed Description

Complex Number This struct represents a signed int complex number.

8.4.2 Field Documentation

8.4.2.1 Npp32s Npp32sc::im

Imaginary part.

8.4.2.2 Npp32s Npp32sc::re

Real part.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.5 Npp32uc Struct Reference

Complex Number This struct represents an unsigned int complex number.

```
#include <nppdefs.h>
```

Data Fields

- [Npp32u re](#)
Real part.
- [Npp32u im](#)
Imaginary part.

8.5.1 Detailed Description

Complex Number This struct represents an unsigned int complex number.

8.5.2 Field Documentation

8.5.2.1 Npp32u Npp32uc::im

Imaginary part.

8.5.2.2 Npp32u Npp32uc::re

Real part.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.6 Npp64fc Struct Reference

Complex Number This struct represents a double floating-point complex number.

```
#include <nppdefs.h>
```

Data Fields

- **Npp64f re**
Real part.
- **Npp64f im**
Imaginary part.

8.6.1 Detailed Description

Complex Number This struct represents a double floating-point complex number.

8.6.2 Field Documentation

8.6.2.1 Npp64f Npp64fc::im

Imaginary part.

8.6.2.2 Npp64f Npp64fc::re

Real part.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.7 Npp64sc Struct Reference

Complex Number This struct represents a long long complex number.

```
#include <nppdefs.h>
```

Data Fields

- [Npp64s re](#)

Real part.

- [Npp64s im](#)

Imaginary part.

8.7.1 Detailed Description

Complex Number This struct represents a long long complex number.

8.7.2 Field Documentation

8.7.2.1 Npp64s Npp64sc::im

Imaginary part.

8.7.2.2 Npp64s Npp64sc::re

Real part.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.8 Npp8uc Struct Reference

Complex Number This struct represents an unsigned char complex number.

```
#include <nppdefs.h>
```

Data Fields

- [Npp8u re](#)
Real part.
- [Npp8u im](#)
Imaginary part.

8.8.1 Detailed Description

Complex Number This struct represents an unsigned char complex number.

8.8.2 Field Documentation

8.8.2.1 Npp8u Npp8uc::im

Imaginary part.

8.8.2.2 Npp8u Npp8uc::re

Real part.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.9 NppiHaarBuffer Struct Reference

```
#include <nppdefs.h>
```

Data Fields

- int **haarBufferSize**
size of the buffer
- **Npp32s * haarBuffer**
buffer

8.9.1 Field Documentation

8.9.1.1 **Npp32s* NppiHaarBuffer::haarBuffer**

buffer

8.9.1.2 **int NppiHaarBuffer::haarBufferSize**

size of the buffer

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.10 NppiHaarClassifier_32f Struct Reference

```
#include <nppdefs.h>
```

Data Fields

- int numClassifiers
 - number of classifiers*
- Npp32s * classifiers
 - packed classifier data 40 bytes each*
- size_t classifierStep
- NppiSize classifierSize
- Npp32s * counterDevice

8.10.1 Field Documentation

8.10.1.1 Npp32s* NppiHaarClassifier_32f::classifiers

packed classifier data 40 bytes each

8.10.1.2 NppiSize NppiHaarClassifier_32f::classifierSize

8.10.1.3 size_t NppiHaarClassifier_32f::classifierStep

8.10.1.4 Npp32s* NppiHaarClassifier_32f::counterDevice

8.10.1.5 int NppiHaarClassifier_32f::numClassifiers

number of classifiers

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.11 NppiPoint Struct Reference

2D Point

```
#include <nppdefs.h>
```

Data Fields

- int **x**
x-coordinate.
- int **y**
y-coordinate.

8.11.1 Detailed Description

2D Point

8.11.2 Field Documentation

8.11.2.1 int NppiPoint::x

x-coordinate.

8.11.2.2 int NppiPoint::y

y-coordinate.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.12 NppiRect Struct Reference

2D Rectangle This struct contains position and size information of a rectangle in two space.

```
#include <nppdefs.h>
```

Data Fields

- int **x**
x-coordinate of upper left corner.
- int **y**
y-coordinate of upper left corner.
- int **width**
Rectangle width.
- int **height**
Rectangle height.

8.12.1 Detailed Description

2D Rectangle This struct contains position and size information of a rectangle in two space.

The rectangle's position is usually signified by the coordinate of its upper-left corner.

8.12.2 Field Documentation

8.12.2.1 int NppiRect::height

Rectangle height.

8.12.2.2 int NppiRect::width

Rectangle width.

8.12.2.3 int NppiRect::x

x-coordinate of upper left corner.

8.12.2.4 int NppiRect::y

y-coordinate of upper left corner.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.13 NppiSize Struct Reference

2D Size This struct typically represents the size of a rectangular region in two space.

```
#include <nppdefs.h>
```

Data Fields

- int **width**
Rectangle width.
- int **height**
Rectangle height.

8.13.1 Detailed Description

2D Size This struct typically represents the size of a rectangular region in two space.

8.13.2 Field Documentation

8.13.2.1 int NppiSize::height

Rectangle height.

8.13.2.2 int NppiSize::width

Rectangle width.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h

8.14 NppLibraryVersion Struct Reference

```
#include <nppdefs.h>
```

Data Fields

- int **major**
Major version number.
- int **minor**
Minor version number.
- int **build**
Build number. This reflects the nightly build this release was made from.

8.14.1 Field Documentation

8.14.1.1 int NppLibraryVersion::build

Build number. This reflects the nightly build this release was made from.

8.14.1.2 int NppLibraryVersion::major

Major version number.

8.14.1.3 int NppLibraryVersion::minor

Minor version number.

The documentation for this struct was generated from the following file:

- C:/Perforce/sw/rel/gpgpu/toolkit/r5.0/NPP/npp/include/nppdefs.h