NVIDIA Performance Primitives (NPP)

Version 8.0

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Contents

Chapter 1

NVIDIA Performance Primitives

Note: Starting with release 6.5, NPP is also provided as a static library (libnppc_static.a, libnppi_static.a, and libnpps_static.a) on Linux, Android, and Mac OSes in addition to being provided as a shared library. The static NPP libraries depend on a common thread abstraction layer library called cuLIBOS (libculibos.a) that is now distributed as part of the toolkit. Consequently, cuLIBOS must be provided to the linker when the static library is being linked against. The libnppi library is becoming quite large so to minimize library loading and CUDA runtime startup times it is recommended to use the static library(s) whenever possible. To improve loading and runtime performance when using dynamic libraries NPP 8.0 now includes the full set of nppi sub-libraries in addition to the full sized nppi library itself. Linking to only the sub-libraries that contain functions that your application uses can significantly improve load time and runtime startup performance. Some nppi functions make calls to other nppi and/or npps functions internally so you may need to link to a few extra libraries depending on what function calls your application makes. The nppi sub-libraries are split into sections corresponding to the way that nppi header files are split. There are also static versions of each of the new sub-libraries. The full sized nppi library will be deprecated in the next CUDA release. This list of sub-libraries is as follows:

```
nppial  arithmetic and logical operation functions in nppi_arithmetic_and_logical_operations.h
nppicc  color conversion and sampling functions in nppi_color_conversion.h
nppicom JPEG compression and decompression functions in nppi_compression_functions.h
nppidei data exchange and initialization functions in nppi_data_exchange_and_initialization.h
nppif   filtering and computer vision functions in nppi_filter_functions.h
nppig   geometry transformation functions found in nppi_geometry_transforms.h
nppim   morphological operation functions found in nppi_morphological_operations.h
nppist  statistics and linear transform in nppi_statistics_functions.h and nppi_linear_transforms.
nppisu  memory support functions in nppi_support_functions.h
nppitc  threshold and compare operation functions in nppi_threshold_and_compare_operations.h
```

For example, on Linux, to compile a small application foo using NPP against the dynamic library, the following command can be used:

```
nvcc foo.c  -lnppi  -o foo
```

Whereas to compile against the static NPP library, the following command has to be used:

```
nvcc foo.c  -lnppi_static -lculibos -o foo
```

It is also possible to use the native host C++ compiler. Depending on the host operating system, some additional libraries like pthread or dl might be needed on the linking line. The following command on Linux is suggested:

```
g++ foo.c  -lnppi_static -lculibos -lcudart_static -lpthread -ldl
-I <cuda-toolkit-path>/include -L <cuda-toolkit-path>/lib64 -o foo
```

NPP is a stateless API, as of NPP 6.5 the ONLY state that NPP remembers between function calls is the current stream ID, i.e. the stream ID that was set in the most recent nppSetStream call. The default stream ID is 0. If an application intends to use NPP with multiple streams then it is the responsibility of the application to call nppSetStream whenever it wishes to change stream IDs. Several NPP functions may call other NPP functions internally to complete their functionality. For this reason it is recommended that cudaDeviceSynchronize be called before making an nppSetStream call to change to a new stream ID. This will insure that any internal function calls that have not yet occurred will be completed using the current stream ID before it changes to a new ID. Calling cudaDeviceSynchronize frequently call kill performance so minimizing the frequency of these calls is critical for good performance. It is not necessary to call cudaDeviceSynchronize for stream management while the same stream ID is used for multiple NPP calls. All NPP functions should be thread safe except for the following functions:

```
nppiGraphcut_32s8u - this function has been deprecated in NPP 8.0

nppiGraphcut_32f8u - this function has been deprecated in NPP 8.0

nppiGraphcut8_32s8u - this function has been deprecated in NPP 8.0

nppiGraphcut8_32f8u - this function has been deprecated in NPP 8.0

nppiDCTQuantFwd8x8LS_JPEG_8u16s_C1R

nppiDCTQuantInv8x8LS_JPEG_16s8u_C1R
```

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 nppiMeanStdDev8uC1RGetBufferHostSize has been renamed nppiMeanStdDevGetBufferHostSize_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, 8, and 10 (64-bit and 32-bit)

- Microsoft Windows Vista (64-bit and 32-bit)

- Linux (Centos, Ubuntu, and several others) (64-bit and 32-bit)

- Mac OS X (64-bit)

- Android on Arm (32-bit and 64-bit)

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

Starting with Version 5.5 NPP's functionality is now split up into 3 distinct libraries:

- A core library (NPPC) containing basic functionality from the npp.h header files as well as functionality shared by the other two libraries.

- The image processing library NPPI. Any functions from the nppi.h header file (or the various header files named "nppi_xxx.h" are bundled into the NPPI library.

- The signal processing library NPPS. Any function from the npps.h header file (or the various header files named "npps_xxx.h" are bundled into the NPPS library.

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

`/lib/nppc.lib`

`/lib/nppi.lib`

`/lib/npps.lib`

The matching DLLs are located in the CUDA Toolkit's binary directory. Example

`/bin/nppi64_55_<build_no>.dll      // Dynamic image-processing library for 64-bit Windows.`

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

`/lib/libnppc32.so.5.5.<build_no>   // NPP 32-bit dynamic core library for Linux`

`/lib/libnpps32.5.5.dylib  // NPP 32-bit dynamic signal processing 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 signal sum primitive and allocate and free the necessary scratch memory:

```
// pSrc, pSum, pDeviceBuffer are all device pointers.
Npp32f * pSrc;
Npp32f * pSum;
Npp8u * pDeviceBuffer;
int nLength = 1024;

// Allocate the device memroy.
cudaMalloc((void **)(&pSrc), sizeof(Npp32f) * nLength);
nppsSet_32f(1.0f, pSrc, nLength);
cudaMalloc((void **)(&pSum), sizeof(Npp32f) * 1);

// Compute the appropriate size of the scratch-memory buffer
int nBufferSize;
nppsSumGetBufferSize_32f(nLength, &nBufferSize);
// Allocate the scratch buffer
cudaMalloc((void **)(&pDeviceBuffer), nBufferSize);

// Call the primitive with the scratch buffer
```

```
nppsSum_32f(pSrc, nLength, pSum, pDeviceBuffer);
Npp32f nSumHost;
cudaMemcpy(&nSumHost, pSum, sizeof(Npp32f) * 1, cudaMemcpyDeviceToHost);
printf("sum = %f\n", nSumHost); // nSumHost = 1024.0f;

// Free the device memory
cudaFree(pSrc);
cudaFree(pDeviceBuffer);
cudaFree(pSum);
```

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 magnitue (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 $2^{\text{-nScaleFactor}}$.

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

$$128^2 * 2^{-8} = 64$$

2.4   Rounding Modes

Many NPP functions require converting floating-point values to integers. The NppRoundMode enum lists NPP's supported rounding modes. Not all primitives in NPP that perform rounding as part of their functionality allow the user to specify the round-mode used. Instead they use NPP's default rounding mode, which is NPP_RND_FINANCIAL.

2.4.1   Rounding Mode Parameter

A subset of NPP functions performing rounding as part of their functionality do allow the user to specify which rounding mode is used through a parameter of the NppRoundMode type.

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 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 it 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 % sizof(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 returnd 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. In most cases the ROI is passed as a single NppiSize struct, which provides the with and height of the ROI. This raises the 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-left corner (lowest memory address), the user simply offsets the image-data pointers to point to the first pixel of the ROI.

In practice this means that for an image (pSrc, nSrcStep) and the start-pixel of the ROI being at location (x, y), one would pass

pSrcOffset = pSrc + y * nSrcStep + x * PixelSize;

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

PixelSize = NumberOfColorChannels * sizeof(PixelDataType).

E.g. for a pimitive 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 (widthROI * 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 one:

```
 nppiCopy_8u_C3CR(pSrc + 1, 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 channle 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 offseting the destination pointer by one:

```
nppiCopy_8u_C3CR(pSrc, nSrcStep, pDst + 1, nDstStep, oSizeROI);
```

4.6 Source-Image Sampling

A large number of NPP image-processing functions consume at least one source image and produce an output image (e.g. nppiAddC_8u_C1RSfs() or nppiFilterBox_8u_C1R()). All NPP functions falling into this category also operate on ROIs (see Region-of-Interest (ROI)) which for these functions should be considered to describe the destination ROI. In other words the ROI describes a rectangular region in the destination image and all pixels inside of this region are being written by the function in question.

In order to use such functions successfully it is important to understand how the user defined destination ROI affects which pixels in the input image(s) are being read by the algorithms. To simplify the discussion of ROI propagation (i.e. given a destination ROI, what are the ROIs in in the source(s)), it makes sense to distinguish two major cases:

1. Point-Wise Operations: These are primitives like nppiAddC_8u_C1RSfs(). Each output pixel requires exaclty one input pixel to be read.

2. Neighborhood Operations: These are primitives like nppiFilterBox_8u_C1R(), which require a group of pixels from the source image(s) to be read in order to produce a single output.

4.6.1 Point-Wise Operations

As mentioned above, point-wise operations consume a single pixel from the input image (or a single pixel from each input image, if the operation in question has more than one input image) in order to produce a single output pixel.

4.6.2 Neighborhood Operations

In the case of neightborhood operations a number of input pixels (a "neighborhood" of pixels) is read in the input image (or images) in order to compute a single output pixel. All of the functions for image_-filtering_functions and image_morphological_operations are neigborhood operations.

Most of these functions have parameters that affect the size and relative location of the neighborhood: a mask-size structure and an achor-point structure. Both parameters are described in more detail in the next subsections.

4.6.2.1 Mask-Size Parameter

Many NPP neighborhood operations allow the user to specify the size of the neightborhood via a parameter usually named oMaskSize of type NppiSize. In those cases the neighborhood of pixels read from the source(s) is exactly the size of the mask. Assuming the mask is anchored at location (0, 0) (see Anchor-Point Parameter below) and has a size of (w, h), i.e.

```
assert(oMaskSize.w == w);
assert(oMaskSize.h == h);
assert(oAnchor.x == 0);
assert(oAnchor.y == 0);
```

a neighborhood operation would read the following source pixels in order to compute destiation pixel $D_{i,j}$:

$$
\begin{array}{cccc}
S_{i,j} & S_{i,j+1} & \cdots & S_{i,j+w-1} \\
S_{i+1,j} & S_{i+1,j+1} & \cdots & S_{i+1,j+w-1} \\
\vdots & \vdots & \ddots & \vdots \\
S_{i+h-1,j} & S_{i+h-1,j+1} & \cdots & S_{i+h-1,j+w-1}
\end{array}
$$

4.6.2.2   Anchor-Point Parameter

Many NPP primitives perforing neighborhood operations allow the user to specify the relative location of the neighborhood via a parameter usually named oAnchor of type NppiPoint. Using the anchor a developer can chose the position of the mask (see Mask-Size Parameter) relative to current pixel index.

Using the same example as in Mask-Size Parameter, but this time with an anchor position of (a, b):

```
assert(oMaskSize.w == w);
assert(oMaskSize.h == h);
assert(oAnchor.x == a);
assert(oAnchor.y == b);
```

the following pixels from the source image would be read:

$$
\begin{array}{cccc}
S_{i-a,j-b} & S_{i-a,j-b+1} & \cdots & S_{i-a,j-b+w-1} \\
S_{i-a+1,j-b} & S_{i-a+1,j-b+1} & \cdots & S_{i-a+1,j-b+w-1} \\
\vdots & \vdots & \ddots & \vdots \\
S_{i-a+h-1,j-b} & S_{i-a+h-1,j-b+1} & \cdots & S_{i-a+h-1,j-b+w-1}
\end{array}
$$

4.6.2.3   Sampling Beyond Image Boundaries

NPP primitives in general and NPP neighborhood operations in particular require that all pixel locations read and written are valid and within the boundaries of the respective images. Sampling outside of the defined image data regions results in undefined behavior and may lead to system instabilty.

This poses a problem in practice: when processing full-size images one cannot choose the destination ROI to be the same size as the source image. Because neigborhood operations read pixels from an enlarged source ROI, the destination ROI must be shrunk so that the expanded source ROI does not exceed the source image's size.

For cases where this "shrinking" of the destination image size is unacceptable, NPP provides a set of border-expanding Copy primitives. E.g. nppiCopyConstBorder_8u_C1R(), nppiCopyReplicateBorder_-8u_C1R() and nppiCopyWrapBorder_8u_C1R(). The user can use these primitives to "expand" the source image's size using one of the three expansion modes. The expanded image can then be safely passed to a neighborhood operation producing a full-size result.

Chapter 5

Module Index

5.1 Modules

Here is a list of all modules:

Chapter 6

Data Structure Index

6.1 Data Structures

Here are the data structures with brief descriptions:

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.

- int nppGetGpuDeviceProperties (int *pMaxThreadsPerSM, int *pMaxThreadsPerBlock, int *pNumberOfSMs)

  Get the maximum number of threads per SM, maximum threads per block, and number of SMs 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.

- unsigned int nppGetStreamNumSMs (void)

  Get the number of SMs on the device associated with the current NPP CUDA stream.

- unsigned int nppGetStreamMaxThreadsPerSM (void)

    Get the maximum number of threads per SM on the device associated with the current 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 int nppGetGpuDeviceProperties (int ∗ *pMaxThreadsPerSM*, int ∗ *pMaxThreadsPerBlock*, int ∗ *pNumberOfSMs*)

Get the maximum number of threads per SM, maximum threads per block, and number of SMs for the active GPU.

Returns:

cudaSuccess for success, -1 for failure

7.1.2.3 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.

7.1.2.4 int nppGetGpuNumSMs (void)

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

Returns:

Number of SMs of the default CUDA device.

7.1.2.5 const NppLibraryVersion∗ nppGetLibVersion (void)

Get the NPP library version.

Returns:

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

7.1.2.6 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.

7.1.2.7 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

7.1.2.8 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 issed to that NPP stream.

7.1.2.9 unsigned int nppGetStreamMaxThreadsPerSM (void)

Get the maximum number of threads per SM on the device associated with the current NPP CUDA stream.

NPP enables concurrent device tasks via a global stream state varible. 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 issed to that NPP stream. This call avoids a cudaGetDeviceProperties() call.

7.1.2.10 unsigned int nppGetStreamNumSMs (void)

Get the number of SMs on the device associated with the current NPP CUDA stream.

NPP enables concurrent device tasks via a global stream state varible. 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 issed to that NPP stream. This call avoids a cudaGetDeviceProperties() call.

7.1.2.11 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 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_INTER_LANCZOS3_ADVANCED = 17,
  NPPI_SMOOTH_EDGE = (1 << 31) }

Filtering methods.

- enum NppiBayerGridPosition {
  NPPI_BAYER_BGGR = 0,
  NPPI_BAYER_RGGB = 1,
  NPPI_BAYER_GBRG = 2,
  NPPI_BAYER_GRBG = 3 }

  Bayer Grid Position Registration.

- enum NppiMaskSize {
  NPP_MASK_SIZE_1_X_3,
  NPP_MASK_SIZE_1_X_5,
  NPP_MASK_SIZE_3_X_1 = 100,
  NPP_MASK_SIZE_5_X_1,
  NPP_MASK_SIZE_3_X_3 = 200,
  NPP_MASK_SIZE_5_X_5,
  NPP_MASK_SIZE_7_X_7 = 400,
  NPP_MASK_SIZE_9_X_9 = 500,
  NPP_MASK_SIZE_11_X_11 = 600,
  NPP_MASK_SIZE_13_X_13 = 700,
  NPP_MASK_SIZE_15_X_15 = 800 }

  Fixed filter-kernel sizes.

- enum NppiDifferentialKernel {
  NPP_FILTER_SOBEL,
  NPP_FILTER_SCHARR }

  Differential Filter types.

- enum NppStatus {
  NPP_NOT_SUPPORTED_MODE_ERROR = -9999,
  NPP_INVALID_HOST_POINTER_ERROR = -1032,
  NPP_INVALID_DEVICE_POINTER_ERROR = -1031,
  NPP_LUT_PALETTE_BITSIZE_ERROR = -1030,
  NPP_ZC_MODE_NOT_SUPPORTED_ERROR = -1028,
  NPP_NOT_SUFFICIENT_COMPUTE_CAPABILITY = -1027,
  NPP_TEXTURE_BIND_ERROR = -1024,
  NPP_WRONG_INTERSECTION_ROI_ERROR = -1020,
  NPP_HAAR_CLASSIFIER_PIXEL_MATCH_ERROR = -1006,
  NPP_MEMFREE_ERROR = -1005,
  NPP_MEMSET_ERROR = -1004,
  NPP_MEMCPY_ERROR = -1003,
  NPP_ALIGNMENT_ERROR = -1002,
  NPP_CUDA_KERNEL_EXECUTION_ERROR = -1000,

NPP_ROUND_MODE_NOT_SUPPORTED_ERROR = -213,

NPP_QUALITY_INDEX_ERROR = -210,

NPP_RESIZE_NO_OPERATION_ERROR = -201,

NPP_OVERFLOW_ERROR = -109,

NPP_NOT_EVEN_STEP_ERROR = -108,

NPP_HISTOGRAM_NUMBER_OF_LEVELS_ERROR = -107,

NPP_LUT_NUMBER_OF_LEVELS_ERROR = -106,

NPP_CORRUPTED_DATA_ERROR = -61,

NPP_CHANNEL_ORDER_ERROR = -60,

NPP_ZERO_MASK_VALUE_ERROR = -59,

NPP_QUADRANGLE_ERROR = -58,

NPP_RECTANGLE_ERROR = -57,

NPP_COEFFICIENT_ERROR = -56,

NPP_NUMBER_OF_CHANNELS_ERROR = -53,

NPP_COI_ERROR = -52,

NPP_DIVISOR_ERROR = -51,

NPP_CHANNEL_ERROR = -47,

NPP_STRIDE_ERROR = -37,

NPP_ANCHOR_ERROR = -34,

NPP_MASK_SIZE_ERROR = -33,

NPP_RESIZE_FACTOR_ERROR = -23,

NPP_INTERPOLATION_ERROR = -22,

NPP_MIRROR_FLIP_ERROR = -21,

NPP_MOMENT_00_ZERO_ERROR = -20,

NPP_THRESHOLD_NEGATIVE_LEVEL_ERROR = -19,

NPP_THRESHOLD_ERROR = -18,

NPP_CONTEXT_MATCH_ERROR = -17,

NPP_FFT_FLAG_ERROR = -16,

NPP_FFT_ORDER_ERROR = -15,

NPP_STEP_ERROR = -14,

NPP_SCALE_RANGE_ERROR = -13,

NPP_DATA_TYPE_ERROR = -12,

NPP_OUT_OFF_RANGE_ERROR = -11,

NPP_DIVIDE_BY_ZERO_ERROR = -10,

NPP_MEMORY_ALLOCATION_ERR = -9,

NPP_NULL_POINTER_ERROR = -8,

NPP_RANGE_ERROR = -7,

NPP_SIZE_ERROR = -6,

NPP_BAD_ARGUMENT_ERROR = -5,

NPP_NO_MEMORY_ERROR = -4,

NPP_NOT_IMPLEMENTED_ERROR = -3,

NPP_ERROR = -2,

NPP_ERROR_RESERVED = -1,

NPP_NO_ERROR = 0,

NPP_SUCCESS = NPP_NO_ERROR,

NPP_NO_OPERATION_WARNING = 1,

NPP_DIVIDE_BY_ZERO_WARNING = 6,

NPP_AFFINE_QUAD_INCORRECT_WARNING = 28,

NPP_WRONG_INTERSECTION_ROI_WARNING = 29,

NPP_WRONG_INTERSECTION_QUAD_WARNING = 30,

NPP_DOUBLE_SIZE_WARNING = 35,

NPP_MISALIGNED_DST_ROI_WARNING = 10000 }

Error Status Codes.

- enum NppGpuComputeCapability {

NPP_CUDA_UNKNOWN_VERSION = -1,

NPP_CUDA_NOT_CAPABLE = 0,

NPP_CUDA_1_0 = 100,

NPP_CUDA_1_1 = 110,

NPP_CUDA_1_2 = 120,

NPP_CUDA_1_3 = 130,

NPP_CUDA_2_0 = 200,

NPP_CUDA_2_1 = 210,

NPP_CUDA_3_0 = 300,

NPP_CUDA_3_2 = 320,

NPP_CUDA_3_5 = 350,

NPP_CUDA_3_7 = 370,

NPP_CUDA_5_0 = 500,

NPP_CUDA_5_2 = 520,

NPP_CUDA_5_3 = 530,

NPP_CUDA_6_0 = 600 }
- 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_NEAR,

  NPP_ROUND_NEAREST_TIES_TO_EVEN = NPP_RND_NEAR,

  NPP_RND_FINANCIAL,

  NPP_ROUND_NEAREST_TIES_AWAY_FROM_ZERO = NPP_RND_FINANCIAL,

  NPP_RND_ZERO,

  NPP_ROUND_TOWARD_ZERO = NPP_RND_ZERO }

    Rounding Modes.

- enum NppiBorderType {

  NPP_BORDER_UNDEFINED = 0,

  NPP_BORDER_NONE = NPP_BORDER_UNDEFINED,

  NPP_BORDER_CONSTANT = 1,

  NPP_BORDER_REPLICATE = 2,

  NPP_BORDER_WRAP = 3,

  NPP_BORDER_MIRROR = 4 }
- enum NppHintAlgorithm {

  NPP_ALG_HINT_NONE,

  NPP_ALG_HINT_FAST,

  NPP_ALG_HINT_ACCURATE }
- 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 }
- enum NppiHuffmanTableType {

  nppiDCTable,

  nppiACTable }

- enum NppiNorm {
  nppiNormInf = 0,
  nppiNormL1 = 1,
  nppiNormL2 = 2 }

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 capable device is machine's default device.

NPP_CUDA_3_2 Indicates that CUDA 3.2 capable device is machine's default device.

NPP_CUDA_3_5 Indicates that CUDA 3.5 capable device is machine's default device.

NPP_CUDA_3_7 Indicates that CUDA 3.7 capable device is machine's default device.

NPP_CUDA_5_0 Indicates that CUDA 5.0 capable device is machine's default device.

NPP_CUDA_5_2 Indicates that CUDA 5.2 capable device is machine's default device.

NPP_CUDA_5_3 Indicates that CUDA 5.3 capable device is machine's default device.

NPP_CUDA_6_0 Indicates that CUDA 6.0 or better is machine's default device.

7.2.2.3 enum NppHintAlgorithm

Enumerator:

NPP_ALG_HINT_NONE

NPP_ALG_HINT_FAST

NPP_ALG_HINT_ACCURATE

7.2.2.4 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

7.2.2.5   enum NppiAxis

Enumerator:

NPP_HORIZONTAL_AXIS
NPP_VERTICAL_AXIS
NPP_BOTH_AXIS

7.2.2.6   enum NppiBayerGridPosition

Bayer Grid Position Registration.

Enumerator:

NPPI_BAYER_BGGR   Default registration position.
NPPI_BAYER_RGGB
NPPI_BAYER_GBRG
NPPI_BAYER_GRBG

7.2.2.7   enum NppiBorderType

Enumerator:

NPP_BORDER_UNDEFINED
NPP_BORDER_NONE
NPP_BORDER_CONSTANT
NPP_BORDER_REPLICATE
NPP_BORDER_WRAP
NPP_BORDER_MIRROR

7.2.2.8   enum NppiDifferentialKernel

Differential Filter types.

Enumerator:

NPP_FILTER_SOBEL
NPP_FILTER_SCHARR

7.2.2.9   enum NppiHuffmanTableType

Enumerator:

    nppiDCTable   DC Table.

    nppiACTable   AC Table.

7.2.2.10   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_INTER_LANCZOS3_ADVANCED   Generic Lanczos filtering with order 3.

    NPPI_SMOOTH_EDGE   Smooth edge filtering.

7.2.2.11   enum NppiMaskSize

Fixed filter-kernel sizes.

Enumerator:

    NPP_MASK_SIZE_1_X_3

    NPP_MASK_SIZE_1_X_5

    NPP_MASK_SIZE_3_X_1

    NPP_MASK_SIZE_5_X_1

    NPP_MASK_SIZE_3_X_3

    NPP_MASK_SIZE_5_X_5

    NPP_MASK_SIZE_7_X_7

    NPP_MASK_SIZE_9_X_9

    NPP_MASK_SIZE_11_X_11

    NPP_MASK_SIZE_13_X_13

    NPP_MASK_SIZE_15_X_15

7.2.2.12   enum NppiNorm

Enumerator:

    nppiNormInf   maximum

    nppiNormL1   sum

    nppiNormL2   square root of sum of squares

7.2.2.13   enum NppRoundMode

Rounding Modes.

The enumerated rounding modes are used by a large number of NPP primitives to allow the user to specify the method by which fractional values are converted to integer values. Also see Rounding Modes.

For NPP release 5.5 new names for the three rounding modes are introduced that are based on the naming conventions for rounding modes set forth in the IEEE-754 floating-point standard. Developers are encouraged to use the new, longer names to be future proof as the legacy names will be deprecated in subsequent NPP releases.

Enumerator:

    NPP_RND_NEAR   Round to the nearest even integer.

         All fractional numbers are rounded to their nearest integer. The ambiguous cases (i.e. <integer>.5) are rounded to the closest even integer. E.g.

- roundNear(0.5) = 0
- roundNear(0.6) = 1
- roundNear(1.5) = 2
- roundNear(-1.5) = -2

    NPP_ROUND_NEAREST_TIES_TO_EVEN   Alias name for NPP_RND_NEAR.

    NPP_RND_FINANCIAL   Round according to financial rule.

         All fractional numbers are rounded to their nearest integer. The ambiguous cases (i.e. <integer>.5) are rounded away from zero. E.g.

- roundFinancial(0.4) = 0
- roundFinancial(0.5) = 1
- roundFinancial(-1.5) = -2

    NPP_ROUND_NEAREST_TIES_AWAY_FROM_ZERO   Alias name for NPP_RND_-FINANCIAL.

    NPP_RND_ZERO   Round towards zero (truncation).

         All fractional numbers of the form <integer>.<decimals> are truncated to <integer>.

- roundZero(1.5) = 1
- roundZero(1.9) = 1
- roundZero(-2.5) = -2

    NPP_ROUND_TOWARD_ZERO   Alias name for NPP_RND_ZERO.

7.2.2.14   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_INVALID_HOST_POINTER_ERROR

NPP_INVALID_DEVICE_POINTER_ERROR

NPP_LUT_PALETTE_BITSIZE_ERROR

NPP_ZC_MODE_NOT_SUPPORTED_ERROR   ZeroCrossing mode not supported.

NPP_NOT_SUFFICIENT_COMPUTE_CAPABILITY

NPP_TEXTURE_BIND_ERROR

NPP_WRONG_INTERSECTION_ROI_ERROR

NPP_HAAR_CLASSIFIER_PIXEL_MATCH_ERROR

NPP_MEMFREE_ERROR

NPP_MEMSET_ERROR

NPP_MEMCPY_ERROR

NPP_ALIGNMENT_ERROR

NPP_CUDA_KERNEL_EXECUTION_ERROR

NPP_ROUND_MODE_NOT_SUPPORTED_ERROR   Unsupported round mode.

NPP_QUALITY_INDEX_ERROR   Image pixels are constant for quality index.

NPP_RESIZE_NO_OPERATION_ERROR   One of the output image dimensions is less than 1 pixel.

NPP_OVERFLOW_ERROR   Number overflows the upper or lower limit of the data type.

NPP_NOT_EVEN_STEP_ERROR   Step value is not pixel multiple.

NPP_HISTOGRAM_NUMBER_OF_LEVELS_ERROR   Number of levels for histogram is less than 2.

NPP_LUT_NUMBER_OF_LEVELS_ERROR   Number of levels for LUT is less than 2.

NPP_CORRUPTED_DATA_ERROR   Processed data is corrupted.

NPP_CHANNEL_ORDER_ERROR   Wrong order of the destination channels.

NPP_ZERO_MASK_VALUE_ERROR   All values of the mask are zero.

NPP_QUADRANGLE_ERROR   The quadrangle is nonconvex or degenerates into triangle, line or point.

NPP_RECTANGLE_ERROR   Size of the rectangle region is less than or equal to 1.

NPP_COEFFICIENT_ERROR   Unallowable values of the transformation coefficients.

NPP_NUMBER_OF_CHANNELS_ERROR   Bad or unsupported number of channels.

NPP_COI_ERROR   Channel of interest is not 1, 2, or 3.

NPP_DIVISOR_ERROR   Divisor is equal to zero.

NPP_CHANNEL_ERROR   Illegal channel index.

NPP_STRIDE_ERROR   Stride is less than the row length.

NPP_ANCHOR_ERROR   Anchor point is outside mask.

NPP_MASK_SIZE_ERROR Lower bound is larger than upper bound.

NPP_RESIZE_FACTOR_ERROR

NPP_INTERPOLATION_ERROR

NPP_MIRROR_FLIP_ERROR

NPP_MOMENT_00_ZERO_ERROR

NPP_THRESHOLD_NEGATIVE_LEVEL_ERROR

NPP_THRESHOLD_ERROR

NPP_CONTEXT_MATCH_ERROR

NPP_FFT_FLAG_ERROR

NPP_FFT_ORDER_ERROR

NPP_STEP_ERROR Step is less or equal zero.

NPP_SCALE_RANGE_ERROR

NPP_DATA_TYPE_ERROR

NPP_OUT_OFF_RANGE_ERROR

NPP_DIVIDE_BY_ZERO_ERROR

NPP_MEMORY_ALLOCATION_ERR

NPP_NULL_POINTER_ERROR

NPP_RANGE_ERROR

NPP_SIZE_ERROR

NPP_BAD_ARGUMENT_ERROR

NPP_NO_MEMORY_ERROR

NPP_NOT_IMPLEMENTED_ERROR

NPP_ERROR

NPP_ERROR_RESERVED

NPP_NO_ERROR Error free operation.

NPP_SUCCESS Successful operation (same as NPP_NO_ERROR).

NPP_NO_OPERATION_WARNING Indicates that no operation was performed.

NPP_DIVIDE_BY_ZERO_WARNING Divisor is zero however does not terminate the execution.

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_WRONG_INTERSECTION_ROI_WARNING The given ROI has no interestion with either the source or destination ROI.
Thus no operation was performed.

NPP_WRONG_INTERSECTION_QUAD_WARNING The given quadrangle has no intersection with either the source or destination ROI.
Thus no operation was performed.

NPP_DOUBLE_SIZE_WARNING Image size isn't multiple of two.
Indicates that in case of 422/411/420 sampling the ROI width/height was modified for proper processing.

NPP_MISALIGNED_DST_ROI_WARNING Speed reduction due to uncoalesced memory accesses warning.

7.2.2.15 enum NppsZCType

Enumerator:

    nppZCR   sign change

    nppZCXor   sign change XOR

    nppZCC   sign change count_0

7.3 Basic NPP Data Types

Data Structures

- struct NPP_ALIGN_8

  Complex Number This struct represents an unsigned int complex number.

- struct NPP_ALIGN_16

  Complex Number This struct represents a long long 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

- typedef struct NPP_ALIGN_8 Npp32uc

  Complex Number This struct represents an unsigned int complex number.

- typedef struct NPP_ALIGN_8 Npp32sc

  Complex Number This struct represents a signed int complex number.

- typedef struct NPP_ALIGN_8 Npp32fc

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

- typedef struct NPP_ALIGN_16 Npp64sc

  Complex Number This struct represents a long long complex number.

- typedef struct NPP_ALIGN_16 Npp64fc

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

Functions

- struct __align__ (2)

  Complex Number This struct represents an unsigned char complex number.

- struct __align__ (4)

  Complex Number This struct represents an unsigned short complex number.

Variables

- Npp8uc
- Npp16uc
- Npp16sc

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 struct NPP_ALIGN_8 Npp32fc

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

7.3.1.5 typedef int Npp32s

32-bit signed integers

7.3.1.6 typedef struct NPP_ALIGN_8 Npp32sc

Complex Number This struct represents a signed int complex number.

7.3.1.7 typedef unsigned int Npp32u

32-bit unsigned integers

7.3.1.8 typedef struct NPP_ALIGN_8 Npp32uc

Complex Number This struct represents an unsigned int complex number.

7.3.1.9 typedef double Npp64f

64-bit floating-point numbers

7.3.1.10 typedef struct NPP_ALIGN_16 Npp64fc

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

7.3.1.11 typedef long long Npp64s

64-bit signed integers

7.3.1.12 typedef struct NPP_ALIGN_16 Npp64sc

Complex Number This struct represents a long long complex number.

7.3.1.13 typedef unsigned long long Npp64u

64-bit unsigned integers

7.3.1.14 typedef signed char Npp8s

8-bit signed chars

7.3.1.15 typedef unsigned char Npp8u

8-bit unsigned chars

7.3.2 Function Documentation

7.3.2.1 struct __align__ (4) `[read]`

Complex Number This struct represents an unsigned short complex number.

Complex Number This struct represents a short complex number.

< Real part

< Imaginary part

< Real part

< Imaginary part

7.3.2.2 struct __align__ (2) `[read]`

Complex Number This struct represents an unsigned char complex number.

< Real part

< Imaginary part

7.3.3 Variable Documentation

7.3.3.1 Npp16sc

7.3.3.2 Npp16uc

7.3.3.3 Npp8uc

7.4 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.

7.4.1 Detailed Description

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

These functions can be found in either the nppi or nppicc libraries. Linking to only the sub-libraries that you use can significantly save link time, application load time, and CUDA runtime startup time when using dynamic libraries.

7.5 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 nDst-Step, 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 nDst-Step, 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.

BGRToYUV

BGR 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 nppiBGRToYUV_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 YUV color conversion.

- NppStatus nppiBGRToYUV_8u_AC4R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI)

  4 channel 8-bit unsigned packed BGR with alpha to 4 channel 8-bit unsigned packed YUV color conversion with alpha, not affecting alpha.

- NppStatus nppiBGRToYUV_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 YUV color conversion.

- NppStatus nppiBGRToYUV_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 YUV color conversion.

- NppStatus nppiBGRToYUV_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 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 nDst-Step, 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 nDst-Step, 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.

YUVToBGR

YUV to BGR 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 nppiYUVToBGR_8u_C3R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDst-Step, NppiSize oSizeROI)

   3 channel 8-bit unsigned packed YUV to 3 channel 8-bit unsigned packed BGR color conversion.

- NppStatus nppiYUVToBGR_8u_AC4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDst-Step, NppiSize oSizeROI)

   4 channel 8-bit packed YUV with alpha to 4 channel 8-bit unsigned packed BGR color conversion with alpha, not affecting alpha.

- NppStatus nppiYUVToBGR_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 BGR color conversion.

- NppStatus nppiYUVToBGR_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 BGR 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_P3C4R (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 constant alpha (0xFF).

- 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.

NV21ToRGB

NV21 to RGB color conversion.

- NppStatus nppiNV21ToRGB_8u_P2C4R (const Npp8u ∗const pSrc[2], int rSrcStep, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI)

    2 channel 8-bit unsigned planar NV21 to 4 channel 8-bit unsigned packed RGBA color conversion with constant alpha (0xFF).

BGRToYUV420

BGR to YUV420 color conversion.

- 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.

YUV420ToBGR

YUV420 to BGR color conversion.

- 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.

- NppStatus nppiYUV420ToBGR_8u_P3C4R (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 BGR color conversion with constant alpha (0xFF).

NV21ToBGR

NV21 to BGR color conversion.

- NppStatus nppiNV21ToBGR_8u_P2C4R (const Npp8u ∗const pSrc[2], int rSrcStep, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI)

    2 channel 8-bit unsigned planar NV21 to 4 channel 8-bit unsigned packed BGRA color conversion with constant alpha (0xFF).

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 nDst-Step, NppiSize 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 nD-stStep, 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.

- 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.

- 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.

- 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.

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 CbYCrC22 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.

RGBToYCbCr411

RGB to YCbCr411 color conversion.

- NppStatus nppiRGBToYCbCr411_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 YCbCr411 color conversion.

- NppStatus nppiRGBToYCbCr411_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 YCbCr411 color conversion.

BGRToYCbCr

BGR to YCbCr color conversion.

- NppStatus nppiBGRToYCbCr_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 YCbCr color conversion.

- NppStatus nppiBGRToYCbCr_8u_AC4P3R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst[3], int nDstStep, NppiSize oSizeROI)

  4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr color conversion.

- NppStatus nppiBGRToYCbCr_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 YCbCr 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.

YCbCr411ToRGB

YCbCr411 to RGB color conversion.

- [NppStatus nppiYCbCr411ToRGB_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 RGB color conversion.

- [NppStatus nppiYCbCr411ToRGB_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 RGB 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 nDst-Step, [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, NppiSize 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 nDst-Step, NppiSize 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, NppiSize 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 nDst-Step, NppiSize 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 nDst-Step, 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;
nfY = nL - 16.0F;
nL = 116.0F * nL - 16.0F;
nA = cbrtf(nfX) - 16.0F;
nA = 500.0F * (nA - nfY);
nB = cbrtf(nfZ) - 16.0F;
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 nDst-Step, 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 nDst-Step, 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 nDst-Step, 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 < 0.1667F)
        nR = (nM1 + nMDiff * nh * 6.0F); // / 0.1667F
    else if (nh < 0.5F)
        nR = nM2;
    else
        nR = nM1 + nMDiff * ( 0.6667F - nh ) * 6.0F; // / 0.1667F
}
if (nR > 1.0F)
    nR = 1.0F;
nh = nNormalizedH;
if (0.6667F < nh)
    nG = nM1;
else
{
    if (nh < 0.1667F)
        nG = (nM1 + nMDiff * nh * 6.0F); // / 0.1667F
    else if (nh < 0.5F)
        nG = nM2;
    else
        nG = nM1 + nMDiff * (0.6667F - nh ) * 6.0F; // / 0.1667F
}
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 < 0.1667F)
        nB = (nM1 + nMDiff * nh * 6.0F); // / 0.1667F
    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 nDst-Step, 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 nDst-Step, 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 nD-stStep, 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 nD-stStep, 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 nDst-Step, 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, NppiSize 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 nDst-Step, NppiSize 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 nDst-Step, NppiSize oSizeROI)

  4 channel 8-bit unsigned packed HSV with alpha to 4 channel 8-bit unsigned packed RGB with alpha color conversion.

RGBToGray

RGB to CCIR601 Gray conversion.

Here is how NPP converts gamma corrected RGB to CCIR601 Gray.

```
nGray =  0.299F * R + 0.587F * G + 0.114F * B;
```

- NppStatus nppiRGBToGray_8u_C3C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI)

  3 channel 8-bit unsigned packed RGB to 1 channel 8-bit unsigned packed Gray conversion.

- NppStatus nppiRGBToGray_8u_AC4C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nD-stStep, NppiSize oSizeROI)

  4 channel 8-bit unsigned packed RGB with alpha to 1 channel 8-bit unsigned packed Gray conversion.

- NppStatus nppiRGBToGray_16u_C3C1R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI)

  3 channel 16-bit unsigned packed RGB to 1 channel 16-bit unsigned packed Gray conversion.

- NppStatus nppiRGBToGray_16u_AC4C1R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI)

  4 channel 16-bit unsigned packed RGB with alpha to 1 channel 16-bit unsigned packed Gray conversion.

- NppStatus nppiRGBToGray_16s_C3C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI)

  3 channel 16-bit signed packed RGB to 1 channel 16-bit signed packed Gray conversion.

- NppStatus nppiRGBToGray_16s_AC4C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI)

  4 channel 16-bit signed packed RGB with alpha to 1 channel 16-bit signed packed Gray conversion.

- NppStatus nppiRGBToGray_32f_C3C1R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nD-stStep, NppiSize oSizeROI)

  3 channel 32-bit floating point packed RGB to 1 channel 32-bit floating point packed Gray conversion.

- NppStatus nppiRGBToGray_32f_AC4C1R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI)

  4 channel 32-bit floating point packed RGB with alpha to 1 channel 32-bit floating point packed Gray conversion.

ColorToGray

RGB Color to Gray conversion using user supplied conversion coefficients.

Here is how NPP converts gamma corrected RGB Color to Gray using user supplied conversion coefficients.

```
nGray =  aCoeffs[0] * R + aCoeffs[1] * G + aCoeffs[2] * B;
```

For the C4C1R versions of the functions the calculations are as follows. For BGRA or other formats with alpha just rearrange the coefficients accordingly.

```
nGray =  aCoeffs[0] * R + aCoeffs[1] * G + aCoeffs[2] * B + aCoeffs[3] * A;
```

- NppStatus nppiColorToGray_8u_C3C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aCoeffs[3])
  3 channel 8-bit unsigned packed RGB to 1 channel 8-bit unsigned packed Gray conversion.

- NppStatus nppiColorToGray_8u_AC4C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nD-stStep, NppiSize oSizeROI, const Npp32f aCoeffs[3])
  4 channel 8-bit unsigned packed RGB with alpha to 1 channel 8-bit unsigned packed Gray conversion.

- NppStatus nppiColorToGray_8u_C4C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aCoeffs[4])
  4 channel 8-bit unsigned packed RGBA to 1 channel 8-bit unsigned packed Gray conversion.

- NppStatus nppiColorToGray_16u_C3C1R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[3])
  3 channel 16-bit unsigned packed RGB to 1 channel 16-bit unsigned packed Gray conversion.

- NppStatus nppiColorToGray_16u_AC4C1R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[3])
  4 channel 16-bit unsigned packed RGB with alpha to 1 channel 16-bit unsigned packed Gray conversion.

- NppStatus nppiColorToGray_16u_C4C1R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[4])
  4 channel 16-bit unsigned packed RGBA to 1 channel 16-bit unsigned packed Gray conversion.

- NppStatus nppiColorToGray_16s_C3C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[3])
  3 channel 16-bit signed packed RGB to 1 channel 16-bit signed packed Gray conversion.

- NppStatus nppiColorToGray_16s_AC4C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[3])
  4 channel 16-bit signed packed RGB with alpha to 1 channel 16-bit signed packed Gray conversion.

- NppStatus nppiColorToGray_16s_C4C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[4])
  4 channel 16-bit signed packed RGBA to 1 channel 16-bit signed packed Gray conversion.

- NppStatus nppiColorToGray_32f_C3C1R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[3])

3 channel 32-bit floating point packed RGB to 1 channel 32-bit floating point packed Gray conversion.

- NppStatus nppiColorToGray_32f_AC4C1R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[3])

    4 channel 32-bit floating point packed RGB with alpha to 1 channel 32-bit floating point packed Gray conversion.

- NppStatus nppiColorToGray_32f_C4C1R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aCoeffs[4])

    4 channel 32-bit floating point packed RGBA to 1 channel 32-bit floating point packed Gray conversion.

GradientColorToGray

RGB Color to Gray Gradient conversion using user selected gradient distance method.

- NppStatus nppiGradientColorToGray_8u_C3C1R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI, NppiNorm eNorm)

    3 channel 8-bit unsigned packed RGB to 1 channel 8-bit unsigned packed Gray Gradient conversion.

- NppStatus nppiGradientColorToGray_16u_C3C1R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDstStep, NppiSize oSizeROI, NppiNorm eNorm)

    3 channel 16-bit unsigned packed RGB to 1 channel 16-bit unsigned packed Gray Gradient conversion.

- NppStatus nppiGradientColorToGray_16s_C3C1R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nDstStep, NppiSize oSizeROI, NppiNorm eNorm)

    3 channel 16-bit signed packed RGB to 1 channel 16-bit signed packed Gray Gradient conversion.

- NppStatus nppiGradientColorToGray_32f_C3C1R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDstStep, NppiSize oSizeROI, NppiNorm eNorm)

    3 channel 32-bit floating point packed RGB to 1 channel 32-bit floating point packed Gray Gradient conversion.

ColorDebayer

Grayscale Color Filter Array to RGB Color Debayer conversion.

Generates one RGB color pixel for every grayscale source pixel. Source and destination images must have even width and height. Missing pixel colors are generated using bilinear interpolation with chroma correlation of generated green values (eInterpolation MUST be set to 0). eGrid allows the user to specify the Bayer grid registration position at source image location oSrcROI.x, oSrcROI.y relative to pSrc. Possible registration positions are:

```
 NPPI_BAYER_BGGR   NPPI_BAYER_RGGB   NPPI_BAYER_GBRG   NPPI_BAYER_GRBG

     B G               R G               G B               G R
     G R               G B               R G               B G
```

If it becomes necessary to access source pixels outside source image then the source image borders are mirrored.

Here is how the algorithm works. R, G, and B base pixels from the source image are used unmodified. To generate R values for those G pixels, the average of R(x - 1, y) and R(x + 1, y) or R(x, y - 1) and R(x, y + 1) is used depending on whether the left and right or top and bottom pixels are R base pixels. To generate B values for those G pixels, the same algorithm is used using nearest B values. For an R base pixel, if there are no B values in the upper, lower, left, or right adjacent pixels then B is the average of B values in the 4 diagonal (G base) pixels. The same algorithm is used using R values to generate the R value of a B base pixel. Chroma correlation is applied to generated G values only, for a B base pixel G(x - 1, y) and G(x + 1, y) are averaged or G(x, y - 1) and G(x, y + 1) are averaged depending on whether the absolute difference between B(x, y) and the average of B(x - 2, y) and B(x + 2, y) is smaller than the absolute difference between B(x, y) and the average of B(x, y - 2) and B(x, y + 2). For an R base pixel the same algorithm is used testing against the surrounding R values at those offsets. If the horizontal and vertical differences are the same at one of those pixels then the average of the four left, right, upper and lower G values is used instead.

- NppStatus nppiCFAToRGB_8u_C1C3R (const Npp8u *pSrc, int nSrcStep, NppiSize oSrcSize, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiBayerGridPosition eGrid, NppiInterpolation-Mode eInterpolation)

  1 channel 8-bit unsigned packed CFA grayscale Bayer pattern to 3 channel 8-bit unsigned packed RGB conversion.

- NppStatus nppiCFAToRGBA_8u_C1AC4R (const Npp8u *pSrc, int nSrcStep, NppiSize oSrcSize, NppiRect oSrcROI, Npp8u *pDst, int nDstStep, NppiBayerGridPosition eGrid, NppiInterpolation-Mode eInterpolation, Npp8u nAlpha)

  1 channel 8-bit unsigned packed CFA grayscale Bayer pattern to 4 channel 8-bit unsigned packed RGB conversion with alpha.

- NppStatus nppiCFAToRGB_16u_C1C3R (const Npp16u *pSrc, int nSrcStep, NppiSize oSrcSize, NppiRect oSrcROI, Npp16u *pDst, int nDstStep, NppiBayerGridPosition eGrid, NppiInterpolation-Mode eInterpolation)

  1 channel 16-bit unsigned packed CFA grayscale Bayer pattern to 3 channel 16-bit unsigned packed RGB conversion.

- NppStatus nppiCFAToRGBA_16u_C1AC4R (const Npp16u *pSrc, int nSrcStep, NppiSize oSrcSize, NppiRect oSrcROI, Npp16u *pDst, int nDstStep, NppiBayerGridPosition eGrid, NppiInterpolation-Mode eInterpolation, Npp16u nAlpha)

  1 channel 16-bit unsigned packed CFA grayscale Bayer pattern to 4 channel 16-bit unsigned packed RGB conversion with alpha.

7.5.1 Detailed Description

Routines for converting between various image color models.

7.5.2 Function Documentation

7.5.2.1 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

7.5.2.2 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

7.5.2.3 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

7.5.2.4 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

7.5.2.5 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

7.5.2.6 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

7.5.2.7 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

7.5.2.8 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

7.5.2.9 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

7.5.2.10 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

7.5.2.11 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

7.5.2.12 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

7.5.2.13 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

7.5.2.14 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

7.5.2.15 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 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

7.5.2.16 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

7.5.2.17 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

7.5.2.18 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

7.5.2.19 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

7.5.2.20 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

7.5.2.21 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

7.5.2.22 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

7.5.2.23   NppStatus nppiBGRToYCbCr_8u_AC4P3R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*[3], int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed BGR with alpha to 3 channel 8-bit unsigned planar YCbCr color conversion.

images.

Parameters:

> *pSrc* Source-Image Pointer.

> *nSrcStep* Source-Image Line Step.

> *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

7.5.2.24   NppStatus nppiBGRToYCbCr_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 YCbCr color conversion.

images.

Parameters:

> *pSrc* Source-Image Pointer.

> *nSrcStep* Source-Image Line Step.

> *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

7.5.2.25   NppStatus nppiBGRToYCbCr_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 YCbCr color conversion.

images.

Parameters:

> *pSrc* Source-Image Pointer.

> *nSrcStep* Source-Image Line Step.

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

7.5.2.26 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

7.5.2.27 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

7.5.2.28 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

7.5.2.29 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

7.5.2.30 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

7.5.2.31 NppStatus nppiBGRToYUV_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 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

7.5.2.32 NppStatus nppiBGRToYUV_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 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

7.5.2.33 NppStatus nppiBGRToYUV_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 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

7.5.2.34 NppStatus nppiBGRToYUV_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 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

7.5.2.35 NppStatus nppiBGRToYUV_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 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

7.5.2.36 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

7.5.2.37 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

7.5.2.38 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

7.5.2.39 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

7.5.2.40 NppStatus nppiCFAToRGB_16u_C1C3R (const Npp16u ∗ *pSrc*, int *nSrcStep*, NppiSize *oSrcSize*, NppiRect *oSrcROI*, Npp16u ∗ *pDst*, int *nDstStep*, NppiBayerGridPosition *eGrid*, NppiInterpolationMode *eInterpolation*)

1 channel 16-bit unsigned packed CFA grayscale Bayer pattern to 3 channel 16-bit unsigned packed RGB conversion.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

oSrcSize full source image width and height relative to pSrc.

oSrcROI rectangle specifying starting source image pixel x and y location relative to pSrc and ROI width and height.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

eGrid enumeration value specifying bayer grid registration position at location oSrcROI.x, oSrcROI.y relative to pSrc.

eInterpolation MUST be NPPI_INTER_UNDEFINED

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.41 NppStatus nppiCFAToRGB_8u_C1C3R (const Npp8u ∗ *pSrc*, int *nSrcStep*, NppiSize *oSrcSize*, NppiRect *oSrcROI*, Npp8u ∗ *pDst*, int *nDstStep*, NppiBayerGridPosition *eGrid*, NppiInterpolationMode *eInterpolation*)

1 channel 8-bit unsigned packed CFA grayscale Bayer pattern to 3 channel 8-bit unsigned packed RGB conversion.

Parameters:

    pSrc Source-Image Pointer.

    nSrcStep Source-Image Line Step.

    oSrcSize full source image width and height relative to pSrc.

    oSrcROI rectangle specifying starting source image pixel x and y location relative to pSrc and ROI width and height.

    pDst Destination-Image Pointer.

    nDstStep Destination-Image Line Step.

    eGrid enumeration value specifying bayer grid registration position at location oSrcROI.x, oSrcROI.y relative to pSrc.

    eInterpolation MUST be NPPI_INTER_UNDEFINED

Returns:

    Image Data Related Error Codes, ROI Related Error Codes

7.5.2.42 NppStatus nppiCFAToRGBA_16u_C1AC4R (const Npp16u ∗ *pSrc*, int *nSrcStep*, NppiSize *oSrcSize*, NppiRect *oSrcROI*, Npp16u ∗ *pDst*, int *nDstStep*, NppiBayerGridPosition *eGrid*, NppiInterpolationMode *eInterpolation*, Npp16u *nAlpha*)

1 channel 16-bit unsigned packed CFA grayscale Bayer pattern to 4 channel 16-bit unsigned packed RGB conversion with alpha.

Parameters:

    pSrc Source-Image Pointer.

    nSrcStep Source-Image Line Step.

    oSrcSize full source image width and height relative to pSrc.

    oSrcROI rectangle specifying starting source image pixel x and y location relative to pSrc and ROI width and height.

    pDst Destination-Image Pointer.

    nDstStep Destination-Image Line Step.

    eGrid enumeration value specifying bayer grid registration position at location oSrcROI.x, oSrcROI.y relative to pSrc.

    eInterpolation MUST be NPPI_INTER_UNDEFINED

    nAlpha constant alpha value to be written to each destination pixel

Returns:

    Image Data Related Error Codes, ROI Related Error Codes

7.5.2.43 NppStatus nppiCFAToRGBA_8u_C1AC4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, NppiSize *oSrcSize*, NppiRect *oSrcROI*, Npp8u ∗ *pDst*, int *nDstStep*, NppiBayerGridPosition *eGrid*, NppiInterpolationMode *eInterpolation*, Npp8u *nAlpha*)

1 channel 8-bit unsigned packed CFA grayscale Bayer pattern to 4 channel 8-bit unsigned packed RGB conversion with alpha.

Parameters:

   pSrc Source-Image Pointer.

   nSrcStep Source-Image Line Step.

   oSrcSize full source image width and height relative to pSrc.

   oSrcROI rectangle specifying starting source image pixel x and y location relative to pSrc and ROI width and height.

   pDst Destination-Image Pointer.

   nDstStep Destination-Image Line Step.

   eGrid enumeration value specifying bayer grid registration position at location oSrcROI.x, oSrcROI.y relative to pSrc.

   eInterpolation MUST be NPPI_INTER_UNDEFINED

   nAlpha constant alpha value to be written to each destination pixel

Returns:

   Image Data Related Error Codes, ROI Related Error Codes

7.5.2.44 NppStatus nppiColorToGray_16s_AC4C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[3])

4 channel 16-bit signed packed RGB with alpha to 1 channel 16-bit signed packed Gray 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).

   aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

   Image Data Related Error Codes, ROI Related Error Codes

7.5.2.45 NppStatus nppiColorToGray_16s_C3C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[3])

3 channel 16-bit signed packed RGB to 1 channel 16-bit signed packed Gray 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).

aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.46 NppStatus nppiColorToGray_16s_C4C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[4])

4 channel 16-bit signed packed RGBA to 1 channel 16-bit signed packed Gray 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).

aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.47 NppStatus nppiColorToGray_16u_AC4C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[3])

4 channel 16-bit unsigned packed RGB with alpha to 1 channel 16-bit unsigned packed Gray 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).

aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.48 NppStatus nppiColorToGray_16u_C3C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[3])

3 channel 16-bit unsigned packed RGB to 1 channel 16-bit unsigned packed Gray 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).

    aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

    Image Data Related Error Codes, ROI Related Error Codes

7.5.2.49 NppStatus nppiColorToGray_16u_C4C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[4])

4 channel 16-bit unsigned packed RGBA to 1 channel 16-bit unsigned packed Gray 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).

    aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

    Image Data Related Error Codes, ROI Related Error Codes

7.5.2.50 NppStatus nppiColorToGray_32f_AC4C1R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[3])

4 channel 32-bit floating point packed RGB with alpha to 1 channel 32-bit floating point packed Gray 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).

aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.51 NppStatus nppiColorToGray_32f_C3C1R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[3])

3 channel 32-bit floating point packed RGB to 1 channel 32-bit floating point packed Gray 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).

aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.52 NppStatus nppiColorToGray_32f_C4C1R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[4])

4 channel 32-bit floating point packed RGBA to 1 channel 32-bit floating point packed Gray 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).

aCoeffs fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.53 NppStatus nppiColorToGray_8u_AC4C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[3])

4 channel 8-bit unsigned packed RGB with alpha to 1 channel 8-bit unsigned packed Gray 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).
> *aCoeffs* fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.5.2.54 NppStatus nppiColorToGray_8u_C3C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[3])

3 channel 8-bit unsigned packed RGB to 1 channel 8-bit unsigned packed Gray 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).
> *aCoeffs* fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.5.2.55 NppStatus nppiColorToGray_8u_C4C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aCoeffs*[4])

4 channel 8-bit unsigned packed RGBA to 1 channel 8-bit unsigned packed Gray 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).
> *aCoeffs* fixed size array of constant floating point conversion coefficient values, one per color channel.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.5.2.56 NppStatus nppiGradientColorToGray_16s_C3C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiNorm *eNorm*)

3 channel 16-bit signed packed RGB to 1 channel 16-bit signed packed Gray Gradient 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).

   eNorm Gradient distance method to use.

Returns:

   Image Data Related Error Codes, ROI Related Error Codes

7.5.2.57 NppStatus nppiGradientColorToGray_16u_C3C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiNorm *eNorm*)

3 channel 16-bit unsigned packed RGB to 1 channel 16-bit unsigned packed Gray Gradient 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).

   eNorm Gradient distance method to use.

Returns:

   Image Data Related Error Codes, ROI Related Error Codes

7.5.2.58 NppStatus nppiGradientColorToGray_32f_C3C1R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiNorm *eNorm*)

3 channel 32-bit floating point packed RGB to 1 channel 32-bit floating point packed Gray Gradient 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).

eNorm Gradient distance method to use.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.59 NppStatus nppiGradientColorToGray_8u_C3C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, NppiNorm *eNorm*)

3 channel 8-bit unsigned packed RGB to 1 channel 8-bit unsigned packed Gray Gradient 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).

eNorm Gradient distance method to use.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.5.2.60 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

7.5.2.61 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

7.5.2.62 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

7.5.2.63 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

7.5.2.64 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

7.5.2.65 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

7.5.2.66 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

7.5.2.67 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

7.5.2.68 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

7.5.2.69 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

7.5.2.70 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

7.5.2.71 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

7.5.2.72 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

7.5.2.73 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

7.5.2.74 NppStatus nppiNV21ToBGR_8u_P2C4R (const Npp8u ∗const *pSrc*[2], int *rSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar NV21 to 4 channel 8-bit unsigned packed BGRA color conversion with constant alpha (0xFF).

Parameters:

> *pSrc* Source-Planar-Image Pointer Array (one for Y plane, one for VU plane).
>
> *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

7.5.2.75 NppStatus nppiNV21ToRGB_8u_P2C4R (const Npp8u ∗const *pSrc*[2], int *rSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

2 channel 8-bit unsigned planar NV21 to 4 channel 8-bit unsigned packed RGBA color conversion with constant alpha (0xFF).

Parameters:

> *pSrc* Source-Planar-Image Pointer Array (one for Y plane, one for VU plane).
>
> *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

7.5.2.76 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

7.5.2.77 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

7.5.2.78 NppStatus nppiRGBToGray_16s_AC4C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit signed packed RGB with alpha to 1 channel 16-bit signed packed Gray 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

7.5.2.79 NppStatus nppiRGBToGray_16s_C3C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 16-bit signed packed RGB to 1 channel 16-bit signed packed Gray 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

7.5.2.80 NppStatus nppiRGBToGray_16u_AC4C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 16-bit unsigned packed RGB with alpha to 1 channel 16-bit unsigned packed Gray 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

7.5.2.81 NppStatus nppiRGBToGray_16u_C3C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 16-bit unsigned packed RGB to 1 channel 16-bit unsigned packed Gray 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

7.5.2.82 NppStatus nppiRGBToGray_32f_AC4C1R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 32-bit floating point packed RGB with alpha to 1 channel 32-bit floating point packed Gray 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

7.5.2.83 NppStatus nppiRGBToGray_32f_C3C1R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

3 channel 32-bit floating point packed RGB to 1 channel 32-bit floating point packed Gray 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

7.5.2.84 NppStatus nppiRGBToGray_8u_AC4C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*)

4 channel 8-bit unsigned packed RGB with alpha to 1 channel 8-bit unsigned packed Gray 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

7.5.2.85 NppStatus nppiRGBToGray_8u_C3C1R (const Npp8u * pSrc, int nSrcStep, Npp8u * pDst, int nDstStep, NppiSize oSizeROI)

3 channel 8-bit unsigned packed RGB to 1 channel 8-bit unsigned packed Gray 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

7.5.2.86 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

7.5.2.87 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

7.5.2.88 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

7.5.2.89 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

7.5.2.90 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

7.5.2.91 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

7.5.2.92 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

7.5.2.93 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

7.5.2.94 NppStatus nppiRGBToYCbCr411_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 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

7.5.2.95 NppStatus nppiRGBToYCbCr411_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 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

7.5.2.96 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

7.5.2.97 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

7.5.2.98 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

7.5.2.99 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

7.5.2.100 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

7.5.2.101　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

7.5.2.102　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.

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

7.5.2.103　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

7.5.2.104 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

7.5.2.105 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

7.5.2.106 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

7.5.2.107   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

7.5.2.108   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

7.5.2.109   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

7.5.2.110 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

7.5.2.111 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

7.5.2.112 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

7.5.2.113 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

7.5.2.114 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

7.5.2.115 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

7.5.2.116 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

7.5.2.117 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

7.5.2.118 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

7.5.2.119 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

7.5.2.120 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

7.5.2.121 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

7.5.2.122 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

7.5.2.123   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

7.5.2.124   NppStatus nppiYCbCr411ToRGB_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 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

7.5.2.125   NppStatus nppiYCbCr411ToRGB_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 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

7.5.2.126 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

7.5.2.127 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

7.5.2.128 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

7.5.2.129 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

7.5.2.130 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

7.5.2.131 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

7.5.2.132 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

7.5.2.133 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.

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

7.5.2.134 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

7.5.2.135 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

7.5.2.136 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.

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

7.5.2.137 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

7.5.2.138 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

7.5.2.139 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

7.5.2.140 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

7.5.2.141 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

7.5.2.142 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

7.5.2.143 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

7.5.2.144 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

7.5.2.145 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

7.5.2.146 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

7.5.2.147 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

7.5.2.148 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

7.5.2.149 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

7.5.2.150 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

7.5.2.151 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

7.5.2.152 NppStatus nppiYUV420ToBGR_8u_P3C4R (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 BGR color conversion with constant alpha (0xFF).

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

7.5.2.153 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

7.5.2.154 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

7.5.2.155 NppStatus nppiYUV420ToRGB_8u_P3C4R (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 constant alpha (0xFF).

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

7.5.2.156   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

7.5.2.157   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

7.5.2.158   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

7.5.2.159 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

7.5.2.160 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

7.5.2.161 NppStatus nppiYUVToBGR_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 BGR 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

7.5.2.162   NppStatus nppiYUVToBGR_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 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

7.5.2.163   NppStatus nppiYUVToBGR_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 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

7.5.2.164   NppStatus nppiYUVToBGR_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 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

7.5.2.165   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

7.5.2.166   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

7.5.2.167   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

7.5.2.168 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

7.6   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.

7.6.1 Detailed Description

Routines for converting between various image color sampling formats.

7.6.2 Function Documentation

7.6.2.1 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

7.6.2.2   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

7.6.2.3   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

7.6.2.4 **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

7.6.2.5 **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

7.6.2.6 **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

7.6.2.7 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

7.6.2.8 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

7.6.2.9 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

7.6.2.10 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

7.6.2.11 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

7.6.2.12 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

7.6.2.13 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

7.6.2.14 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

7.6.2.15 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

7.6.2.16 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

7.6.2.17 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

7.6.2.18 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

7.6.2.19 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

7.6.2.20 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

7.6.2.21 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

7.6.2.22 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

7.6.2.23 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

7.6.2.24 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

7.6.2.25 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

7.6.2.26 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

7.6.2.27 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

7.6.2.28 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

7.6.2.29 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

7.6.2.30 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

7.6.2.31 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

7.6.2.32 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

7.6.2.33 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

7.6.2.34 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

7.6.2.35 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

7.6.2.36 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

7.6.2.37 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

7.6.2.38 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.

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

7.6.2.39 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

7.6.2.40 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

7.6.2.41 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

7.6.2.42 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

7.6.2.43 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

7.6.2.44 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

7.6.2.45   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

7.6.2.46   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

7.6.2.47   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

7.6.2.48 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

7.6.2.49 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

7.7 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 nDst-Step, 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 oSize-ROI)

    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 oSize-ROI)

    3 channel 8-bit unsigned planar color in place inverse gamma correction.

7.7.1 Detailed Description

Routines for correcting image color gamma.

7.7.2 Function Documentation

7.7.2.1 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

7.7.2.2 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

7.7.2.3 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

7.7.2.4 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

7.7.2.5 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

7.7.2.6 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

7.7.2.7 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

7.7.2.8 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

7.7.2.9   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

7.7.2.10   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

7.7.2.11   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

7.7.2.12 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

7.8 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.

7.8.1 Detailed Description

Routines for performing complement color key replacement.

7.8.2 Function Documentation

7.8.2.1 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

7.8.2.2 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

7.8.2.3 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

7.8.2.4 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

7.9 Color Processing

Routines for performing image color manipulation.

ColorTwist

Perform color twist pixel processing.

Color twist consists of applying the following formula to each image pixel using coefficients from the user supplied color twist host matrix array as follows where dst[x] and src[x] represent destination pixel and source pixel channel or plane x. The full sized coefficient matrix should be sent for all pixel channel sizes, the function will process the appropriate coefficients and channels for the corresponding pixel size.

```
dst[0] = aTwist[0][0] * src[0] + aTwist[0][1] * src[1] + aTwist[0][2] * src[2] + aTwist[0][3]
dst[1] = aTwist[1][0] * src[0] + aTwist[1][1] * src[1] + aTwist[1][2] * src[2] + aTwist[1][3]
dst[2] = aTwist[2][0] * src[0] + aTwist[2][1] * src[1] + aTwist[2][2] * src[2] + aTwist[2][3]
```

- NppStatus nppiColorTwist32f_8u_C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  1 channel 8-bit unsigned color twist.

- NppStatus nppiColorTwist32f_8u_C1IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  1 channel 8-bit unsigned in place color twist.

- NppStatus nppiColorTwist32f_8u_C2R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  2 channel 8-bit unsigned color twist.

- NppStatus nppiColorTwist32f_8u_C2IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  2 channel 8-bit unsigned in place color twist.

- NppStatus nppiColorTwist32f_8u_C3R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 8-bit unsigned color twist.

- NppStatus nppiColorTwist32f_8u_C3IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 8-bit unsigned in place color twist.

- NppStatus nppiColorTwist32f_8u_C4R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 8-bit unsigned color twist, with alpha copy.

- NppStatus nppiColorTwist32f_8u_C4IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 8-bit unsigned in place color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_8u_AC4R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

4 channel 8-bit unsigned color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_8u_AC4IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 8-bit unsigned in place color twist, not affecting Alpha.

- NppStatus nppiColorTwist32fC_8u_C4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[4][4], const Npp32f aConstants[4])

  4 channel 8-bit unsigned color twist with 4x4 matrix and constant vector addition.

- NppStatus nppiColorTwist32fC_8u_C4IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[4][4], const Npp32f aConstants[4])

  4 channel 8-bit unsigned in place color twist with 4x4 matrix and an additional constant vector addition.

- NppStatus nppiColorTwist32f_8u_P3R (const Npp8u ∗const pSrc[3], int nSrcStep, Npp8u ∗const pDst[3], int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 8-bit unsigned planar color twist.

- NppStatus nppiColorTwist32f_8u_IP3R (Npp8u ∗const pSrcDst[3], int nSrcDstStep, NppiSize oS-izeROI, const Npp32f aTwist[3][4])

  3 channel 8-bit unsigned planar in place color twist.

- NppStatus nppiColorTwist32f_8s_C1R (const Npp8s ∗pSrc, int nSrcStep, Npp8s ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  1 channel 8-bit signed color twist.

- NppStatus nppiColorTwist32f_8s_C1IR (Npp8s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  1 channel 8-bit signed in place color twist.

- NppStatus nppiColorTwist32f_8s_C2R (const Npp8s ∗pSrc, int nSrcStep, Npp8s ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  2 channel 8-bit signed color twist.

- NppStatus nppiColorTwist32f_8s_C2IR (Npp8s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  2 channel 8-bit signed in place color twist.

- NppStatus nppiColorTwist32f_8s_C3R (const Npp8s ∗pSrc, int nSrcStep, Npp8s ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 8-bit signed color twist.

- NppStatus nppiColorTwist32f_8s_C3IR (Npp8s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 8-bit signed in place color twist.

- NppStatus nppiColorTwist32f_8s_C4R (const Npp8s ∗pSrc, int nSrcStep, Npp8s ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 8-bit signed color twist, with alpha copy.

- NppStatus nppiColorTwist32f_8s_C4IR (Npp8s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 8-bit signed in place color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_8s_AC4R (const Npp8s ∗pSrc, int nSrcStep, Npp8s ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 8-bit signed color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_8s_AC4IR (Npp8s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 8-bit signed in place color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_8s_P3R (const Npp8s ∗const pSrc[3], int nSrcStep, Npp8s ∗const pDst[3], int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 8-bit signed planar color twist.

- NppStatus nppiColorTwist32f_8s_IP3R (Npp8s ∗const pSrcDst[3], int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 8-bit signed planar in place color twist.

- NppStatus nppiColorTwist32f_16u_C1R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  1 channel 16-bit unsigned color twist.

- NppStatus nppiColorTwist32f_16u_C1IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  1 channel 16-bit unsigned in place color twist.

- NppStatus nppiColorTwist32f_16u_C2R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  2 channel 16-bit unsigned color twist.

- NppStatus nppiColorTwist32f_16u_C2IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  2 channel 16-bit unsigned in place color twist.

- NppStatus nppiColorTwist32f_16u_C3R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 16-bit unsigned color twist.

- NppStatus nppiColorTwist32f_16u_C3IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 16-bit unsigned in place color twist.

- NppStatus nppiColorTwist32f_16u_AC4R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 16-bit unsigned color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_16u_AC4IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSize-ROI, const Npp32f aTwist[3][4])

  4 channel 16-bit unsigned in place color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_16u_P3R (const Npp16u ∗const pSrc[3], int nSrcStep, Npp16u ∗const pDst[3], int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 16-bit unsigned planar color twist.

- NppStatus nppiColorTwist32f_16u_IP3R (Npp16u ∗const pSrcDst[3], int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 16-bit unsigned planar in place color twist.

- NppStatus nppiColorTwist32f_16s_C1R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  1 channel 16-bit signed color twist.

- NppStatus nppiColorTwist32f_16s_C1IR (Npp16s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  1 channel 16-bit signed in place color twist.

- NppStatus nppiColorTwist32f_16s_C2R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  2 channel 16-bit signed color twist.

- NppStatus nppiColorTwist32f_16s_C2IR (Npp16s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  2 channel 16-bit signed in place color twist.

- NppStatus nppiColorTwist32f_16s_C3R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 16-bit signed color twist.

- NppStatus nppiColorTwist32f_16s_C3IR (Npp16s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 16-bit signed in place color twist.

- NppStatus nppiColorTwist32f_16s_AC4R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 16-bit signed color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_16s_AC4IR (Npp16s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  4 channel 16-bit signed in place color twist, not affecting Alpha.

- NppStatus nppiColorTwist32f_16s_P3R (const Npp16s ∗const pSrc[3], int nSrcStep, Npp16s ∗const pDst[3], int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 16-bit signed planar color twist.

- NppStatus nppiColorTwist32f_16s_IP3R (Npp16s ∗const pSrcDst[3], int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

  3 channel 16-bit signed planar in place color twist.

- NppStatus nppiColorTwist_32f_C1R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

1 channel 32-bit floating point color twist.

- NppStatus nppiColorTwist_32f_C1IR (Npp32f ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    1 channel 32-bit floating point in place color twist.

- NppStatus nppiColorTwist_32f_C2R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    2 channel 32-bit floating point color twist.

- NppStatus nppiColorTwist_32f_C2IR (Npp32f ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    2 channel 32-bit floating point in place color twist.

- NppStatus nppiColorTwist_32f_C3R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    3 channel 32-bit floating point color twist.

- NppStatus nppiColorTwist_32f_C3IR (Npp32f ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    3 channel 32-bit floating point in place color twist.

- NppStatus nppiColorTwist_32f_C4R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    4 channel 32-bit floating point color twist, with alpha copy.

- NppStatus nppiColorTwist_32f_C4IR (Npp32f ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    4 channel 32-bit floating point in place color twist, not affecting Alpha.

- NppStatus nppiColorTwist_32f_AC4R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    4 channel 32-bit floating point color twist, not affecting Alpha.

- NppStatus nppiColorTwist_32f_AC4IR (Npp32f ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    4 channel 32-bit floating point in place color twist, not affecting Alpha.

- NppStatus nppiColorTwist_32fC_C4R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f aTwist[4][4], const Npp32f aConstants[4])

    4 channel 32-bit floating point color twist with 4x4 matrix and constant vector addition.

- NppStatus nppiColorTwist_32fC_C4IR (Npp32f ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[4][4], const Npp32f aConstants[4])

    4 channel 32-bit floating point in place color twist with 4x4 matrix and an additional constant vector addition.

- NppStatus nppiColorTwist_32f_P3R (const Npp32f ∗const pSrc[3], int nSrcStep, Npp32f ∗const pDst[3], int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

    3 channel 32-bit floating point planar color twist.

- NppStatus nppiColorTwist_32f_IP3R (Npp32f ∗const pSrcDst[3], int nSrcDstStep, NppiSize oSize-ROI, const Npp32f aTwist[3][4])

    3 channel 32-bit floating point planar in place color twist.

ColorLUT

Perform image color processing using members of various types of color look up tables.

- NppStatus nppiLUT_8u_C1R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, Nppi-Size oSizeROI, const Npp32s ∗pValues, const Npp32s ∗pLevels, int nLevels)

    8-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_8u_C1IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues, const Npp32s ∗pLevels, int nLevels)

    8-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_8u_C3R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, Nppi-Size oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    3 channel 8-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_8u_C3IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    3 channel 8-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_8u_C4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, Nppi-Size oSizeROI, const Npp32s ∗pValues[4], const Npp32s ∗pLevels[4], int nLevels[4])

    4 channel 8-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_8u_C4IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[4], const Npp32s ∗pLevels[4], int nLevels[4])

    4 channel 8-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_8u_AC4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, Nppi-Size 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.

- NppStatus nppiLUT_8u_AC4IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    4 channel 8-bit unsigned look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_16u_C1R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32s ∗pValues, const Npp32s ∗pLevels, int nLevels)

    16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_16u_C1IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues, const Npp32s ∗pLevels, int nLevels)

    16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_16u_C3R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

3 channel 16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_16u_C3IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    3 channel 16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_16u_C4R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

    4 channel 16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_16u_C4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

    4 channel 16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_16u_AC4R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 16-bit unsigned look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_16u_AC4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 16-bit unsigned look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_16s_C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

    16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_16s_C1IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

    16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_16s_C3R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    3 channel 16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_16s_C3IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    3 channel 16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_16s_C4R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

    4 channel 16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_16s_C4IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

    4 channel 16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_16s_AC4R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 16-bit signed look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_16s_AC4IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 16-bit signed look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_32f_C1R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f *pValues, const Npp32f *pLevels, int nLevels)

    32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_32f_C1IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues, const Npp32f *pLevels, int nLevels)

    32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_32f_C3R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

    3 channel 32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_32f_C3IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

    3 channel 32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_32f_C4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f *pValues[4], const Npp32f *pLevels[4], int nLevels[4])

    4 channel 32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_32f_C4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues[4], const Npp32f *pLevels[4], int nLevels[4])

    4 channel 32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_32f_AC4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDstStep, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

    4 channel 32-bit floating point look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_32f_AC4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

    4 channel 32-bit floating point look-up-table in place color conversion, not affecting Alpha.

ColorLUT_Linear

Perform image color processing using linear interpolation between members of various types of color look up tables.

- NppStatus nppiLUT_Linear_8u_C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

    8-bit unsigned linear interpolated look-up-table color conversion.

- NppStatus nppiLUT_Linear_8u_C1IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

    8-bit unsigned linear interpolated look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_8u_C3R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    3 channel 8-bit unsigned linear interpolated look-up-table color conversion.

- NppStatus nppiLUT_Linear_8u_C3IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    3 channel 8-bit unsigned linear interpolated look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_8u_C4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[4], const Npp32s ∗pLevels[4], int nLevels[4])

    4 channel 8-bit unsigned linear interpolated look-up-table color conversion.

- NppStatus nppiLUT_Linear_8u_C4IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[4], const Npp32s ∗pLevels[4], int nLevels[4])

    4 channel 8-bit unsigned linear interpolated look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_8u_AC4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    4 channel 8-bit unsigned linear interpolated look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_Linear_8u_AC4IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    4 channel 8-bit unsigned linear interpolated look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_Linear_16u_C1R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s ∗pValues, const Npp32s ∗pLevels, int nLevels)

    16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_Linear_16u_C1IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues, const Npp32s ∗pLevels, int nLevels)

    16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_16u_C3R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    3 channel 16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_Linear_16u_C3IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    3 channel 16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_16u_C4R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s ∗pValues[4], const Npp32s ∗pLevels[4], int nLevels[4])

    4 channel 16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_Linear_16u_C4IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[4], const Npp32s ∗pLevels[4], int nLevels[4])

    4 channel 16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_16u_AC4R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    4 channel 16-bit unsigned look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_Linear_16u_AC4IR (Npp16u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    4 channel 16-bit unsigned look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_Linear_16s_C1R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s ∗pValues, const Npp32s ∗pLevels, int nLevels)

    16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_Linear_16s_C1IR (Npp16s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues, const Npp32s ∗pLevels, int nLevels)

    16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_16s_C3R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    3 channel 16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_Linear_16s_C3IR (Npp16s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    3 channel 16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_16s_C4R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s ∗pValues[4], const Npp32s ∗pLevels[4], int nLevels[4])

    4 channel 16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_Linear_16s_C4IR (Npp16s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[4], const Npp32s ∗pLevels[4], int nLevels[4])

    4 channel 16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_16s_AC4R (const Npp16s ∗pSrc, int nSrcStep, Npp16s ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    4 channel 16-bit signed look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_Linear_16s_AC4IR (Npp16s ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗pValues[3], const Npp32s ∗pLevels[3], int nLevels[3])

    4 channel 16-bit signed look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_Linear_32f_C1R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f ∗pValues, const Npp32f ∗pLevels, int nLevels)

    32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_Linear_32f_C1IR (Npp32f ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f ∗pValues, const Npp32f ∗pLevels, int nLevels)

    32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_32f_C3R (const Npp32f ∗pSrc, int nSrcStep, Npp32f ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f ∗pValues[3], const Npp32f ∗pLevels[3], int nLevels[3])

    3 channel 32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_Linear_32f_C3IR (Npp32f ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f ∗pValues[3], const Npp32f ∗pLevels[3], int nLevels[3])

3 channel 32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_32f_C4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f *pValues[4], const Npp32f *pLevels[4], int nLevels[4])

  4 channel 32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_Linear_32f_C4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues[4], const Npp32f *pLevels[4], int nLevels[4])

  4 channel 32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_Linear_32f_AC4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nD-stStep, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

  4 channel 32-bit floating point look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_Linear_32f_AC4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

  4 channel 32-bit floating point look-up-table in place color conversion, not affecting Alpha.

ColorLUT_Cubic

Perform image color processing using linear interpolation between members of various types of color look up tables.

- NppStatus nppiLUT_Cubic_8u_C1R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

  8-bit unsigned cubic interpolated look-up-table color conversion.

- NppStatus nppiLUT_Cubic_8u_C1IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

  8-bit unsigned cubic interpolated look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_8u_C3R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

  3 channel 8-bit unsigned cubic interpolated look-up-table color conversion.

- NppStatus nppiLUT_Cubic_8u_C3IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

  3 channel 8-bit unsigned cubic interpolated look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_8u_C4R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDstStep, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

  4 channel 8-bit unsigned cubic interpolated look-up-table color conversion.

- NppStatus nppiLUT_Cubic_8u_C4IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

  4 channel 8-bit unsigned cubic interpolated look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_8u_AC4R (const Npp8u *pSrc, int nSrcStep, Npp8u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

4 channel 8-bit unsigned cubic interpolated look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_Cubic_8u_AC4IR (Npp8u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 8-bit unsigned cubic interpolated look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_Cubic_16u_C1R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

    16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_Cubic_16u_C1IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

    16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_16u_C3R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    3 channel 16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_Cubic_16u_C3IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    3 channel 16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_16u_C4R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

    4 channel 16-bit unsigned look-up-table color conversion.

- NppStatus nppiLUT_Cubic_16u_C4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

    4 channel 16-bit unsigned look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_16u_AC4R (const Npp16u *pSrc, int nSrcStep, Npp16u *pDst, int nD-stStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 16-bit unsigned look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_Cubic_16u_AC4IR (Npp16u *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 16-bit unsigned look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_Cubic_16s_C1R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

    16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_Cubic_16s_C1IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues, const Npp32s *pLevels, int nLevels)

    16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_16s_C3R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    3 channel 16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_Cubic_16s_C3IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    3 channel 16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_16s_C4R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

    4 channel 16-bit signed look-up-table color conversion.

- NppStatus nppiLUT_Cubic_16s_C4IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[4], const Npp32s *pLevels[4], int nLevels[4])

    4 channel 16-bit signed look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_16s_AC4R (const Npp16s *pSrc, int nSrcStep, Npp16s *pDst, int nD-stStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 16-bit signed look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_Cubic_16s_AC4IR (Npp16s *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s *pValues[3], const Npp32s *pLevels[3], int nLevels[3])

    4 channel 16-bit signed look-up-table in place color conversion, not affecting Alpha.

- NppStatus nppiLUT_Cubic_32f_C1R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f *pValues, const Npp32f *pLevels, int nLevels)

    32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_Cubic_32f_C1IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues, const Npp32f *pLevels, int nLevels)

    32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_32f_C3R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

    3 channel 32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_Cubic_32f_C3IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

    3 channel 32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_32f_C4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f *pValues[4], const Npp32f *pLevels[4], int nLevels[4])

    4 channel 32-bit floating point look-up-table color conversion.

- NppStatus nppiLUT_Cubic_32f_C4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues[4], const Npp32f *pLevels[4], int nLevels[4])

    4 channel 32-bit floating point look-up-table in place color conversion.

- NppStatus nppiLUT_Cubic_32f_AC4R (const Npp32f *pSrc, int nSrcStep, Npp32f *pDst, int nDst-Step, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

    4 channel 32-bit floating point look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUT_Cubic_32f_AC4IR (Npp32f *pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f *pValues[3], const Npp32f *pLevels[3], int nLevels[3])

    4 channel 32-bit floating point look-up-table in place color conversion, not affecting Alpha.

ColorLUT_Trilinear

Perform image color processing using 3D trilinear interpolation between members of various types of color look up tables.

- NppStatus nppiLUT_Trilinear_8u_C4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDst-Step, NppiSize oSizeROI, Npp32u ∗pValues, Npp8u ∗pLevels[3], int aLevels[3])

    Four channel 8-bit unsigned 3D trilinear interpolated look-up-table color conversion, with alpha copy.

- NppStatus nppiLUT_Trilinear_8u_AC4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nD-stStep, NppiSize oSizeROI, Npp32u ∗pValues, Npp8u ∗pLevels[3], int aLevels[3])

    Four channel 8-bit unsigned 3D trilinear interpolated look-up-table color conversion, not affecting alpha.

- NppStatus nppiLUT_Trilinear_8u_AC4IR (Npp8u ∗pSrcDst, int nSrcDstStep, NppiSize oSizeROI, Npp32u ∗pValues, Npp8u ∗pLevels[3], int aLevels[3])

    Four channel 8-bit unsigned 3D trilinear interpolated look-up-table in place color conversion, not affecting alpha.

ColorLUTPalette

Perform image color processing using various types of bit range restricted palette color look up tables.

- NppStatus nppiLUTPalette_8u_C1R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp8u ∗pTable, int nBitSize)

    One channel 8-bit unsigned bit range restricted palette look-up-table color conversion.

- NppStatus nppiLUTPalette_8u24u_C1R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp8u ∗pTable, int nBitSize)

    One channel 8-bit unsigned bit range restricted 24-bit palette look-up-table color conversion with 24-bit destination output per pixel.

- NppStatus nppiLUTPalette_8u32u_C1R (const Npp8u ∗pSrc, int nSrcStep, Npp32u ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp32u ∗pTable, int nBitSize)

    One channel 8-bit unsigned bit range restricted 32-bit palette look-up-table color conversion with 32-bit destination output per pixel.

- NppStatus nppiLUTPalette_8u_C3R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp8u ∗pTables[3], int nBitSize)

    Three channel 8-bit unsigned bit range restricted palette look-up-table color conversion.

- NppStatus nppiLUTPalette_8u_C4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp8u ∗pTables[4], int nBitSize)

    Four channel 8-bit unsigned bit range restricted palette look-up-table color conversion.

- NppStatus nppiLUTPalette_8u_AC4R (const Npp8u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp8u ∗pTables[3], int nBitSize)

    Four channel 8-bit unsigned bit range restricted palette look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUTPalette_16u_C1R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp16u ∗pTable, int nBitSize)

One channel 16-bit unsigned bit range restricted palette look-up-table color conversion.

- NppStatus nppiLUTPalette_16u8u_C1R (const Npp16u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp8u ∗pTable, int nBitSize)

  One channel 16-bit unsigned bit range restricted 8-bit unsigned palette look-up-table color conversion with 8-bit unsigned destination output per pixel.

- NppStatus nppiLUTPalette_16u24u_C1R (const Npp16u ∗pSrc, int nSrcStep, Npp8u ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp8u ∗pTable, int nBitSize)

  One channel 16-bit unsigned bit range restricted 24-bit unsigned palette look-up-table color conversion with 24-bit unsigned destination output per pixel.

- NppStatus nppiLUTPalette_16u32u_C1R (const Npp16u ∗pSrc, int nSrcStep, Npp32u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp32u ∗pTable, int nBitSize)

  One channel 16-bit unsigned bit range restricted 32-bit palette look-up-table color conversion with 32-bit unsigned destination output per pixel.

- NppStatus nppiLUTPalette_16u_C3R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp16u ∗pTables[3], int nBitSize)

  Three channel 16-bit unsigned bit range restricted palette look-up-table color conversion.

- NppStatus nppiLUTPalette_16u_C4R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nDst-Step, NppiSize oSizeROI, const Npp16u ∗pTables[4], int nBitSize)

  Four channel 16-bit unsigned bit range restricted palette look-up-table color conversion.

- NppStatus nppiLUTPalette_16u_AC4R (const Npp16u ∗pSrc, int nSrcStep, Npp16u ∗pDst, int nD-stStep, NppiSize oSizeROI, const Npp16u ∗pTables[3], int nBitSize)

  Four channel 16-bit unsigned bit range restricted palette look-up-table color conversion, not affecting Alpha.

- NppStatus nppiLUTPaletteSwap_8u_C3A0C4R (const Npp8u ∗pSrc, int nSrcStep, int nAlphaValue, Npp8u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp8u ∗pTables[3], int nBitSize)

  Three channel 8-bit unsigned source bit range restricted palette look-up-table color conversion to four channel 8-bit unsigned destination output with alpha.

- NppStatus nppiLUTPaletteSwap_16u_C3A0C4R (const Npp16u ∗pSrc, int nSrcStep, int nAl-phaValue, Npp16u ∗pDst, int nDstStep, NppiSize oSizeROI, const Npp16u ∗pTables[3], int nBit-Size)

  Three channel 16-bit unsigned source bit range restricted palette look-up-table color conversion to four channel 16-bit unsigned destination output with alpha.

7.9.1 Detailed Description

Routines for performing image color manipulation.

7.9.2 Function Documentation

7.9.2.1 NppStatus nppiColorTwist32f_16s_AC4IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 16-bit signed in place color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is not processed.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.2 NppStatus nppiColorTwist32f_16s_AC4R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 16-bit signed color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.3 NppStatus nppiColorTwist32f_16s_C1IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 16-bit signed in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.4 NppStatus nppiColorTwist32f_16s_C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 16-bit signed color twist.

An input color twist matrix with floating-point coefficient 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).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.5 NppStatus nppiColorTwist32f_16s_C2IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

2 channel 16-bit signed in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

> *pSrcDst* in place packed pixel format image pointer.
>
> *nSrcDstStep* in place packed pixel format image line step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.6 NppStatus nppiColorTwist32f_16s_C2R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

2 channel 16-bit signed color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.7 NppStatus nppiColorTwist32f_16s_C3IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 16-bit signed in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.8 NppStatus nppiColorTwist32f_16s_C3R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 16-bit signed color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.9 NppStatus nppiColorTwist32f_16s_IP3R (Npp16s *const *pSrcDst*[3], int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 16-bit signed planar in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

>   *pSrcDst* in place planar pixel format image pointer array, one pointer per plane.
>
>   *nSrcDstStep* in place planar pixel format image line step.
>
>   *oSizeROI* Region-of-Interest (ROI).
>
>   *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>   Image Data Related Error Codes, ROI Related Error Codes

7.9.2.10 NppStatus nppiColorTwist32f_16s_P3R (const Npp16s *const *pSrc*[3], int *nSrcStep*, Npp16s *const *pDst*[3], int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 16-bit signed planar color twist.

An input color twist matrix with floating-point coefficient 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).
>
>   *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>   Image Data Related Error Codes, ROI Related Error Codes

7.9.2.11 NppStatus nppiColorTwist32f_16u_AC4IR (Npp16u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 16-bit unsigned in place color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is not processed.

Parameters:

>   *pSrcDst* in place packed pixel format image pointer.
>
>   *nSrcDstStep* in place packed pixel format image line step.
>
>   *oSizeROI* Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.12 NppStatus nppiColorTwist32f_16u_AC4R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 16-bit unsigned color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.13 NppStatus nppiColorTwist32f_16u_C1IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 16-bit unsigned in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.14 NppStatus nppiColorTwist32f_16u_C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 16-bit unsigned color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.15 NppStatus nppiColorTwist32f_16u_C2IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

2 channel 16-bit unsigned in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.16 NppStatus nppiColorTwist32f_16u_C2R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

2 channel 16-bit unsigned color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.17 NppStatus nppiColorTwist32f_16u_C3IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 16-bit unsigned in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

>*pSrcDst* in place packed pixel format image pointer.
>
>*nSrcDstStep* in place packed pixel format image line step.
>
>*oSizeROI* Region-of-Interest (ROI).
>
>*aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>Image Data Related Error Codes, ROI Related Error Codes

7.9.2.18 NppStatus nppiColorTwist32f_16u_C3R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 16-bit unsigned color twist.

An input color twist matrix with floating-point coefficient 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).
>
>*aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>Image Data Related Error Codes, ROI Related Error Codes

7.9.2.19 NppStatus nppiColorTwist32f_16u_IP3R (Npp16u ∗const *pSrcDst*[3], int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 16-bit unsigned planar in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

>*pSrcDst* in place planar pixel format image pointer array, one pointer per plane.
>
>*nSrcDstStep* in place planar pixel format image line step.
>
>*oSizeROI* Region-of-Interest (ROI).
>
>*aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>Image Data Related Error Codes, ROI Related Error Codes

7.9.2.20 NppStatus nppiColorTwist32f_16u_P3R (const Npp16u ∗const *pSrc*[3], int *nSrcStep*, Npp16u ∗const *pDst*[3], int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 16-bit unsigned planar color twist.

An input color twist matrix with floating-point coefficient 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).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.21 NppStatus nppiColorTwist32f_8s_AC4IR (Npp8s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 8-bit signed in place color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is not processed.

Parameters:

> *pSrcDst* in place packed pixel format image pointer.
>
> *nSrcDstStep* in place packed pixel format image line step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.22 NppStatus nppiColorTwist32f_8s_AC4R (const Npp8s ∗ *pSrc*, int *nSrcStep*, Npp8s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 8-bit signed color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.23 NppStatus nppiColorTwist32f_8s_C1IR (Npp8s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 8-bit signed in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.24 NppStatus nppiColorTwist32f_8s_C1R (const Npp8s ∗ *pSrc*, int *nSrcStep*, Npp8s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 8-bit signed color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.25 NppStatus nppiColorTwist32f_8s_C2IR (Npp8s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

2 channel 8-bit signed in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

> *pSrcDst* in place packed pixel format image pointer.
>
> *nSrcDstStep* in place packed pixel format image line step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.26 NppStatus nppiColorTwist32f_8s_C2R (const Npp8s ∗ *pSrc*, int *nSrcStep*, Npp8s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

2 channel 8-bit signed color twist.

An input color twist matrix with floating-point coefficient 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).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.27 NppStatus nppiColorTwist32f_8s_C3IR (Npp8s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 8-bit signed in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

> *pSrcDst* in place packed pixel format image pointer.
>
> *nSrcDstStep* in place packed pixel format image line step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.28   NppStatus nppiColorTwist32f_8s_C3R (const Npp8s ∗ *pSrc*, int *nSrcStep*, Npp8s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 8-bit signed color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.29   NppStatus nppiColorTwist32f_8s_C4IR (Npp8s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 8-bit signed in place color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is unmodified.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.30   NppStatus nppiColorTwist32f_8s_C4R (const Npp8s ∗ *pSrc*, int *nSrcStep*, Npp8s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 8-bit signed color twist, with alpha copy.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is copied unmodified from the source pixel to the destination pixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.31 NppStatus nppiColorTwist32f_8s_IP3R (Npp8s ∗const *pSrcDst*[3], int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 8-bit signed planar in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place planar pixel format image pointer array, one pointer per plane.

nSrcDstStep in place planar pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.32 NppStatus nppiColorTwist32f_8s_P3R (const Npp8s ∗const *pSrc*[3], int *nSrcStep*, Npp8s ∗const *pDst*[3], int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 8-bit signed planar color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.33 NppStatus nppiColorTwist32f_8u_AC4IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 8-bit unsigned in place color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is not processed.

Parameters:

> *pSrcDst* in place packed pixel format image pointer.
>
> *nSrcDstStep* in place packed pixel format image line step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.34 NppStatus nppiColorTwist32f_8u_AC4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 8-bit unsigned color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in 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).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.35 NppStatus nppiColorTwist32f_8u_C1IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 8-bit unsigned in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

> *pSrcDst* in place packed pixel format image pointer.
>
> *nSrcDstStep* in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.36 NppStatus nppiColorTwist32f_8u_C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 8-bit unsigned color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.37 NppStatus nppiColorTwist32f_8u_C2IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

2 channel 8-bit unsigned in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.38 NppStatus nppiColorTwist32f_8u_C2R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

2 channel 8-bit unsigned color twist.

An input color twist matrix with floating-point coefficient 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).
>
>*aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>Image Data Related Error Codes, ROI Related Error Codes

7.9.2.39 NppStatus nppiColorTwist32f_8u_C3IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 8-bit unsigned in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

>*pSrcDst* in place packed pixel format image pointer.
>
>*nSrcDstStep* in place packed pixel format image line step.
>
>*oSizeROI* Region-of-Interest (ROI).
>
>*aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>Image Data Related Error Codes, ROI Related Error Codes

7.9.2.40 NppStatus nppiColorTwist32f_8u_C3R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 8-bit unsigned color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.41 NppStatus nppiColorTwist32f_8u_C4IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 8-bit unsigned in place color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is unmodified.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.42 NppStatus nppiColorTwist32f_8u_C4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 8-bit unsigned color twist, with alpha copy.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is copied unmodified from the source pixel to the destination pixel.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.43 NppStatus nppiColorTwist32f_8u_IP3R (Npp8u ∗const *pSrcDst*[3], int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 8-bit unsigned planar in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

    pSrcDst in place planar pixel format image pointer array, one pointer per plane.

    nSrcDstStep in place planar pixel format image line step.

    oSizeROI Region-of-Interest (ROI).

    aTwist The color twist matrix with floating-point coefficient values.

Returns:

    Image Data Related Error Codes, ROI Related Error Codes

7.9.2.44 NppStatus nppiColorTwist32f_8u_P3R (const Npp8u ∗const *pSrc*[3], int *nSrcStep*, Npp8u ∗const *pDst*[3], int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 8-bit unsigned planar color twist.

An input color twist matrix with floating-point coefficient 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).

    aTwist The color twist matrix with floating-point coefficient values.

Returns:

    Image Data Related Error Codes, ROI Related Error Codes

7.9.2.45 NppStatus nppiColorTwist32fC_8u_C4IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[4][4], const Npp32f *aConstants*[4])

4 channel 8-bit unsigned in place color twist with 4x4 matrix and an additional constant vector addition.

An input 4x4 color twist matrix with floating-point coefficient values with an additional constant vector addition is applied within ROI. For this particular version of the function the result is generated as shown below.

```
dst[0] = aTwist[0][0] * src[0] + aTwist[0][1] * src[1] + aTwist[0][2] * src[2] + aTwist[0][3] * src[
dst[1] = aTwist[1][0] * src[0] + aTwist[1][1] * src[1] + aTwist[1][2] * src[2] + aTwist[1][3] * src[
dst[2] = aTwist[2][0] * src[0] + aTwist[2][1] * src[1] + aTwist[2][2] * src[2] + aTwist[2][3] * src[
dst[3] = aTwist[3][0] * src[0] + aTwist[3][1] * src[1] + aTwist[3][2] * src[2] + aTwist[3][3] * src[
```

Parameters:

>   ***pSrcDst*** in place packed pixel format image pointer.
>
>   ***nSrcDstStep*** in place packed pixel format image line step.
>
>   ***oSizeROI*** Region-of-Interest (ROI).
>
>   ***aTwist*** The color twist matrix with floating-point coefficient values.
>
>   ***aConstants*** fixed size array of constant values, one per channel..

Returns:

>   Image Data Related Error Codes, ROI Related Error Codes

7.9.2.46 NppStatus nppiColorTwist32fC_8u_C4R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[4][4], const Npp32f *aConstants*[4])

4 channel 8-bit unsigned color twist with 4x4 matrix and constant vector addition.

An input 4x4 color twist matrix with floating-point coefficient values with an additional constant vector addition is applied within ROI. For this particular version of the function the result is generated as shown below.

```
dst[0] = aTwist[0][0] * src[0] + aTwist[0][1] * src[1] + aTwist[0][2] * src[2] + aTwist[0][3] * src[
dst[1] = aTwist[1][0] * src[0] + aTwist[1][1] * src[1] + aTwist[1][2] * src[2] + aTwist[1][3] * src[
dst[2] = aTwist[2][0] * src[0] + aTwist[2][1] * src[1] + aTwist[2][2] * src[2] + aTwist[2][3] * src[
dst[3] = aTwist[3][0] * src[0] + aTwist[3][1] * src[1] + aTwist[3][2] * src[2] + aTwist[3][3] * src[
```

Parameters:

>   ***pSrc*** Source-Image Pointer.
>
>   ***nSrcStep*** Source-Image Line Step.
>
>   ***pDst*** Destination-Image Pointer.
>
>   ***nDstStep*** Destination-Image Line Step.
>
>   ***oSizeROI*** Region-of-Interest (ROI).
>
>   ***aTwist*** The color twist matrix with floating-point coefficient values.
>
>   ***aConstants*** fixed size array of constant values, one per channel..

Returns:

>   Image Data Related Error Codes, ROI Related Error Codes

7.9.2.47 NppStatus nppiColorTwist_32f_AC4IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 32-bit floating point in place color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is not processed.

Parameters:

>   ***pSrcDst*** in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.48 NppStatus nppiColorTwist_32f_AC4R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 32-bit floating point color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.49 NppStatus nppiColorTwist_32f_C1IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

1 channel 32-bit floating point in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.50 NppStatus nppiColorTwist_32f_C1R (const Npp32f ∗ pSrc, int nSrcStep, Npp32f ∗ pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

1 channel 32-bit floating point color twist.

An input color twist matrix with floating-point coefficient 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).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.51 NppStatus nppiColorTwist_32f_C2IR (Npp32f ∗ pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

2 channel 32-bit floating point in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

> *pSrcDst* in place packed pixel format image pointer.
>
> *nSrcDstStep* in place packed pixel format image line step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *aTwist* The color twist matrix with floating-point coefficient values.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.52 NppStatus nppiColorTwist_32f_C2R (const Npp32f ∗ pSrc, int nSrcStep, Npp32f ∗ pDst, int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

2 channel 32-bit floating point color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.53 NppStatus nppiColorTwist_32f_C3IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 32-bit floating point in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.54 NppStatus nppiColorTwist_32f_C3R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 32-bit floating point color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.55 NppStatus nppiColorTwist_32f_C4IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 32-bit floating point in place color twist, not affecting Alpha.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is not modified.

Parameters:

>*pSrcDst* in place packed pixel format image pointer.

>*nSrcDstStep* in place packed pixel format image line step.

>*oSizeROI* Region-of-Interest (ROI).

>*aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>Image Data Related Error Codes, ROI Related Error Codes

7.9.2.56 NppStatus nppiColorTwist_32f_C4R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

4 channel 32-bit floating point color twist, with alpha copy.

An input color twist matrix with floating-point coefficient values is applied with in ROI. Alpha channel is the last channel and is copied unmodified from the source pixel to the destination pixel.

Parameters:

>*pSrc* Source-Image Pointer.

>*nSrcStep* Source-Image Line Step.

>*pDst* Destination-Image Pointer.

>*nDstStep* Destination-Image Line Step.

>*oSizeROI* Region-of-Interest (ROI).

>*aTwist* The color twist matrix with floating-point coefficient values.

Returns:

>Image Data Related Error Codes, ROI Related Error Codes

7.9.2.57 NppStatus nppiColorTwist_32f_IP3R (Npp32f ∗const *pSrcDst*[3], int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[3][4])

3 channel 32-bit floating point planar in place color twist.

An input color twist matrix with floating-point coefficient values is applied within ROI.

Parameters:

>*pSrcDst* in place planar pixel format image pointer array, one pointer per plane.

>*nSrcDstStep* in place planar pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.58 NppStatus nppiColorTwist_32f_P3R (const Npp32f *const pSrc[3], int nSrcStep, Npp32f *const pDst[3], int nDstStep, NppiSize oSizeROI, const Npp32f aTwist[3][4])

3 channel 32-bit floating point planar color twist.

An input color twist matrix with floating-point coefficient 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).

aTwist The color twist matrix with floating-point coefficient values.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

7.9.2.59 NppStatus nppiColorTwist_32fC_C4IR (Npp32f * pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f aTwist[4][4], const Npp32f aConstants[4])

4 channel 32-bit floating point in place color twist with 4x4 matrix and an additional constant vector addition.

An input 4x4 color twist matrix with floating-point coefficient values with an additional constant vector addition is applied within ROI. For this particular version of the function the result is generated as shown below.

```
dst[0] = aTwist[0][0] * src[0] + aTwist[0][1] * src[1] + aTwist[0][2] * src[2] + aTwist[0][3] * src[
dst[1] = aTwist[1][0] * src[0] + aTwist[1][1] * src[1] + aTwist[1][2] * src[2] + aTwist[1][3] * src[
dst[2] = aTwist[2][0] * src[0] + aTwist[2][1] * src[1] + aTwist[2][2] * src[2] + aTwist[2][3] * src[
dst[3] = aTwist[3][0] * src[0] + aTwist[3][1] * src[1] + aTwist[3][2] * src[2] + aTwist[3][3] * src[
```

Parameters:

pSrcDst in place packed pixel format image pointer.

nSrcDstStep in place packed pixel format image line step.

oSizeROI Region-of-Interest (ROI).

aTwist The color twist matrix with floating-point coefficient values.

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

Returns:

Image Data Related Error Codes, ROI Related Error Codes

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7.9.2.60 NppStatus nppiColorTwist_32fC_C4R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f *aTwist*[4][4], const Npp32f *aConstants*[4])

4 channel 32-bit floating point color twist with 4x4 matrix and constant vector addition.

An input 4x4 color twist matrix with floating-point coefficient values with an additional constant vector addition is applied within ROI. For this particular version of the function the result is generated as shown below.

```
dst[0] = aTwist[0][0] * src[0] + aTwist[0][1] * src[1] + aTwist[0][2] * src[2] + aTwist[0][3] * src[
dst[1] = aTwist[1][0] * src[0] + aTwist[1][1] * src[1] + aTwist[1][2] * src[2] + aTwist[1][3] * src[
dst[2] = aTwist[2][0] * src[0] + aTwist[2][1] * src[1] + aTwist[2][2] * src[2] + aTwist[2][3] * src[
dst[3] = aTwist[3][0] * src[0] + aTwist[3][1] * src[1] + aTwist[3][2] * src[2] + aTwist[3][3] * src[
```

Parameters:

> *pSrc* Source-Image Pointer.
>
> *nSrcStep* Source-Image Line Step.
>
> *pDst* Destination-Image Pointer.
>
> *nDstStep* Destination-Image Line Step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *aTwist* The color twist matrix with floating-point coefficient values.
>
> *aConstants* fixed size array of constant values, one per channel..

Returns:

> Image Data Related Error Codes, ROI Related Error Codes

7.9.2.61 NppStatus nppiLUT_16s_AC4IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit signed look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.62   NppStatus nppiLUT_16s_AC4R (const Npp16s ∗ pSrc, int nSrcStep, Npp16s ∗ pDst, int nDstStep, NppiSize oSizeROI, const Npp32s ∗ pValues[3], const Npp32s ∗ pLevels[3], int nLevels[3])

4 channel 16-bit signed look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.63   NppStatus nppiLUT_16s_C1IR (Npp16s ∗ pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗ pValues, const Npp32s ∗ pLevels, int nLevels)

16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pValues Pointer to an array of user defined OUTPUT values (this is a device memory pointer)

pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.64 NppStatus nppiLUT_16s_C1R (const Npp16s ∗ _pSrc_, int _nSrcStep_, Npp16s ∗ _pDst_, int _nDstStep_, NppiSize _oSizeROI_, const Npp32s ∗ _pValues_, const Npp32s ∗ _pLevels_, int _nLevels_)

16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

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 a device memory pointer)

    pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

    nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.65 NppStatus nppiLUT_16s_C3IR (Npp16s ∗ _pSrcDst_, int _nSrcDstStep_, NppiSize _oSizeROI_, const Npp32s ∗ _pValues_[3], const Npp32s ∗ _pLevels_[3], int _nLevels_[3])

3 channel 16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.66 NppStatus nppiLUT_16s_C3R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.67 NppStatus nppiLUT_16s_C4IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

>   *pSrcDst* In-Place Image Pointer.
>
>   *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.68 NppStatus nppiLUT_16s_C4R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.69 NppStatus nppiLUT_16u_AC4IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit unsigned look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.70 NppStatus nppiLUT_16u_AC4R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit unsigned look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.71 NppStatus nppiLUT_16u_C1IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pValues Pointer to an array of user defined OUTPUT values (this is a device memory pointer)

pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.72 NppStatus nppiLUT_16u_C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

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 a device memory pointer)

pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.73 NppStatus nppiLUT_16u_C3IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.74 NppStatus nppiLUT_16u_C3R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.75 NppStatus nppiLUT_16u_C4IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.76 NppStatus nppiLUT_16u_C4R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.77 NppStatus nppiLUT_32f_AC4IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[3], const Npp32f ∗ *pLevels*[3], int *nLevels*[3])

4 channel 32-bit floating point look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.78 NppStatus nppiLUT_32f_AC4R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[3], const Npp32f ∗ *pLevels*[3], int *nLevels*[3])

4 channel 32-bit floating point look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).
>
> *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 number of 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 or greater than 1024 (the current size limit).

7.9.2.79 NppStatus nppiLUT_32f_C1IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*, const Npp32f ∗ *pLevels*, int *nLevels*)

32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-Image Line Step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *pValues* Pointer to an array of user defined OUTPUT values (this is a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.80 NppStatus nppiLUT_32f_C1R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*, const Npp32f ∗ *pLevels*, int *nLevels*)

32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

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 a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.81 NppStatus nppiLUT_32f_C3IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[3], const Npp32f ∗ *pLevels*[3], int *nLevels*[3])

3 channel 32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.82 NppStatus nppiLUT_32f_C3R (const Npp32f * *pSrc*, int *nSrcStep*, Npp32f * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f * *pValues*[3], const Npp32f * *pLevels*[3], int *nLevels*[3])

3 channel 32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.83 NppStatus nppiLUT_32f_C4IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f * *pValues*[4], const Npp32f * *pLevels*[4], int *nLevels*[4])

4 channel 32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.84 NppStatus nppiLUT_32f_C4R (const Npp32f ∗ pSrc, int nSrcStep, Npp32f ∗ pDst, int nDstStep, NppiSize oSizeROI, const Npp32f ∗ pValues[4], const Npp32f ∗ pLevels[4], int nLevels[4])

4 channel 32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.85 NppStatus nppiLUT_8u_AC4IR (Npp8u ∗ pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗ pValues[3], const Npp32s ∗ pLevels[3], int nLevels[3])

4 channel 8-bit unsigned look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 256.

7.9.2.86 NppStatus nppiLUT_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 using no interpolation. 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).

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 number of 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 or greater than 256.

7.9.2.87 NppStatus nppiLUT_8u_C1IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

8-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pValues Pointer to an array of user defined OUTPUT values (this is a device memory pointer)

pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

nLevels Number of user defined number of 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 or greater than 256.

7.9.2.88   NppStatus nppiLUT_8u_C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *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 with no interpolation.

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 a device memory pointer)
>
>*pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
>*nLevels* Number of user defined number of 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 or greater than 256.

7.9.2.89   NppStatus nppiLUT_8u_C3IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 8-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points with no interpolation.

Parameters:

>*pSrcDst* In-Place Image Pointer.
>
>*nSrcDstStep* In-Place-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 number of 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 or greater than 256.

7.9.2.90 NppStatus nppiLUT_8u_C3R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *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 using no interpolation.

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 number of 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 or greater than 256.

7.9.2.91 NppStatus nppiLUT_8u_C4IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 8-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 256.

7.9.2.92 NppStatus nppiLUT_8u_C4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *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 with no interpolation.

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 number of 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 or greater than 256.

7.9.2.93 NppStatus nppiLUT_Cubic_16s_AC4IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit signed look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

>　*pSrcDst*　In-Place Image Pointer.
>
>　*nSrcDstStep*　In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.94 NppStatus nppiLUT_Cubic_16s_AC4R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit signed look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.95 NppStatus nppiLUT_Cubic_16s_C1IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pValues Pointer to an array of user defined OUTPUT values (this is a device memory pointer)

pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.96 NppStatus nppiLUT_Cubic_16s_C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.97 NppStatus nppiLUT_Cubic_16s_C3IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.98 NppStatus nppiLUT_Cubic_16s_C3R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.99 NppStatus nppiLUT_Cubic_16s_C4IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.100 NppStatus nppiLUT_Cubic_16s_C4R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.101 NppStatus nppiLUT_Cubic_16u_AC4IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit unsigned look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.102 NppStatus nppiLUT_Cubic_16u_AC4R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit unsigned look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).

    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 number of 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 or greater than 1024 (the current size limit).

7.9.2.103 NppStatus nppiLUT_Cubic_16u_C1IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-Image Line Step.

    oSizeROI Region-of-Interest (ROI).

    pValues Pointer to an array of user defined OUTPUT values (this is a device memory pointer)

    pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

    nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.104   NppStatus nppiLUT_Cubic_16u_C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.105   NppStatus nppiLUT_Cubic_16u_C3IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.106   NppStatus nppiLUT_Cubic_16u_C3R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.107   NppStatus nppiLUT_Cubic_16u_C4IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.108   NppStatus nppiLUT_Cubic_16u_C4R (const Npp16u * *pSrc*, int *nSrcStep*, Npp16u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s * *pValues*[4], const Npp32s * *pLevels*[4], int *nLevels*[4])

4 channel 16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.109   NppStatus nppiLUT_Cubic_32f_AC4IR (Npp32f * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f * *pValues*[3], const Npp32f * *pLevels*[3], int *nLevels*[3])

4 channel 32-bit floating point look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

>   *pSrcDst* In-Place Image Pointer.
>
>   *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.110   NppStatus nppiLUT_Cubic_32f_AC4R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[3], const Npp32f ∗ *pLevels*[3], int *nLevels*[3])

4 channel 32-bit floating point look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).
>
> *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 number of 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 or greater than 1024 (the current size limit).

7.9.2.111   NppStatus nppiLUT_Cubic_32f_C1IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*, const Npp32f ∗ *pLevels*, int *nLevels*)

32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-Image Line Step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *pValues* Pointer to an array of user defined OUTPUT values (this is a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.112 NppStatus nppiLUT_Cubic_32f_C1R (const Npp32f ∗ pSrc, int nSrcStep, Npp32f ∗ pDst, int nDstStep, NppiSize oSizeROI, const Npp32f ∗ pValues, const Npp32f ∗ pLevels, int nLevels)

32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 a device memory pointer)

pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.113 NppStatus nppiLUT_Cubic_32f_C3IR (Npp32f ∗ pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f ∗ pValues[3], const Npp32f ∗ pLevels[3], int nLevels[3])

3 channel 32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.114 NppStatus nppiLUT_Cubic_32f_C3R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[3], const Npp32f ∗ *pLevels*[3], int *nLevels*[3])

3 channel 32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.115 NppStatus nppiLUT_Cubic_32f_C4IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[4], const Npp32f ∗ *pLevels*[4], int *nLevels*[4])

4 channel 32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.116 NppStatus nppiLUT_Cubic_32f_C4R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[4], const Npp32f ∗ *pLevels*[4], int *nLevels*[4])

4 channel 32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.117 NppStatus nppiLUT_Cubic_8u_AC4IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 8-bit unsigned cubic interpolated look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points through cubic interpolation. Alpha channel is the last channel and is not processed.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-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 number of 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 or greater than 256.

7.9.2.118 NppStatus nppiLUT_Cubic_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 cubic interpolated look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points through cubic interpolation. 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).

    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 number of 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 or greater than 256.

7.9.2.119 NppStatus nppiLUT_Cubic_8u_C1IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

8-bit unsigned cubic interpolated look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-Image Line Step.

    oSizeROI Region-of-Interest (ROI).

    pValues Pointer to an array of user defined OUTPUT values (this is a device memory pointer)

    pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

    nLevels Number of user defined number of 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 or greater than 256.

7.9.2.120   NppStatus nppiLUT_Cubic_8u_C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

8-bit unsigned cubic interpolated look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 a device memory pointer)

    pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

    nLevels Number of user defined number of 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 or greater than 256.

7.9.2.121   NppStatus nppiLUT_Cubic_8u_C3IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 8-bit unsigned cubic interpolated look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-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 number of 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 or greater than 256.

7.9.2.122 NppStatus nppiLUT_Cubic_8u_C3R (const Npp8u ∗ pSrc, int nSrcStep, Npp8u ∗ pDst, int nDstStep, NppiSize oSizeROI, const Npp32s ∗ pValues[3], const Npp32s ∗ pLevels[3], int nLevels[3])

3 channel 8-bit unsigned cubic interpolated look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 number of 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 or greater than 256.

7.9.2.123 NppStatus nppiLUT_Cubic_8u_C4IR (Npp8u ∗ pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32s ∗ pValues[4], const Npp32s ∗ pLevels[4], int nLevels[4])

4 channel 8-bit unsigned cubic interpolated look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 256.

7.9.2.124 NppStatus nppiLUT_Cubic_8u_C4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 8-bit unsigned cubic interpolated look-up-table color conversion.

The LUT is derived from a set of user defined mapping points through cubic interpolation.

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 number of 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 or greater than 256.

7.9.2.125 NppStatus nppiLUT_Linear_16s_AC4IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit signed look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.126 NppStatus nppiLUT_Linear_16s_AC4R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit signed look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).

   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 number of 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 or greater than 1024 (the current size limit).

7.9.2.127 NppStatus nppiLUT_Linear_16s_C1IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

Parameters:

   pSrcDst In-Place Image Pointer.

   nSrcDstStep In-Place-Image Line Step.

   oSizeROI Region-of-Interest (ROI).

   pValues Pointer to an array of user defined OUTPUT values (this is a device memory pointer)

   pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

   nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.128 NppStatus nppiLUT_Linear_16s_C1R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

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 a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.129 NppStatus nppiLUT_Linear_16s_C3IR (Npp16s ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.130   NppStatus nppiLUT_Linear_16s_C3R (const Npp16s ∗ *pSrc*,   int *nSrcStep*,   Npp16s ∗ *pDst*,   int *nDstStep*,   NppiSize *oSizeROI*,   const Npp32s ∗ *pValues*[3],   const Npp32s ∗ *pLevels*[3],   int *nLevels*[3])

3 channel 16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.131   NppStatus nppiLUT_Linear_16s_C4IR (Npp16s ∗ *pSrcDst*,   int *nSrcDstStep*,   NppiSize *oSizeROI*,   const Npp32s ∗ *pValues*[4],   const Npp32s ∗ *pLevels*[4],   int *nLevels*[4])

4 channel 16-bit signed look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.132 NppStatus nppiLUT_Linear_16s_C4R (const Npp16s ∗ *pSrc*, int *nSrcStep*, Npp16s ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit signed look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.133 NppStatus nppiLUT_Linear_16u_AC4IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit unsigned look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

   pSrcDst In-Place Image Pointer.

   nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.134 NppStatus nppiLUT_Linear_16u_AC4R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 16-bit unsigned look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).
>
> *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 number of 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 or greater than 1024 (the current size limit).

7.9.2.135 NppStatus nppiLUT_Linear_16u_C1IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-Image Line Step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *pValues* Pointer to an array of user defined OUTPUT values (this is a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.136 NppStatus nppiLUT_Linear_16u_C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

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 a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.137 NppStatus nppiLUT_Linear_16u_C3IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.138 NppStatus nppiLUT_Linear_16u_C3R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.139 NppStatus nppiLUT_Linear_16u_C4IR (Npp16u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 16-bit unsigned look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.140 NppStatus nppiLUT_Linear_16u_C4R (const Npp16u ∗ pSrc, int nSrcStep, Npp16u ∗ pDst, int nDstStep, NppiSize oSizeROI, const Npp32s ∗ pValues[4], const Npp32s ∗ pLevels[4], int nLevels[4])

4 channel 16-bit unsigned look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.141 NppStatus nppiLUT_Linear_32f_AC4IR (Npp32f ∗ pSrcDst, int nSrcDstStep, NppiSize oSizeROI, const Npp32f ∗ pValues[3], const Npp32f ∗ pLevels[3], int nLevels[3])

4 channel 32-bit floating point look-up-table in place color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. Alpha channel is the last channel and is not processed.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.142 **NppStatus nppiLUT_Linear_32f_AC4R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[3], const Npp32f ∗ *pLevels*[3], int *nLevels*[3])**

4 channel 32-bit floating point look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points using no interpolation. 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).
>
> *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 number of 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 or greater than 1024 (the current size limit).

7.9.2.143 **NppStatus nppiLUT_Linear_32f_C1IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*, const Npp32f ∗ *pLevels*, int *nLevels*)**

32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-Image Line Step.
>
> *oSizeROI* Region-of-Interest (ROI).
>
> *pValues* Pointer to an array of user defined OUTPUT values (this is a device memory pointer)
>
> *pLevels* Pointer to an array of user defined INPUT values (this is a device memory pointer)
>
> *nLevels* Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.144 NppStatus nppiLUT_Linear_32f_C1R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*, const Npp32f ∗ *pLevels*, int *nLevels*)

32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

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 a device memory pointer)

    pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

    nLevels Number of user defined number of 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 or greater than 1024 (the current size limit).

7.9.2.145 NppStatus nppiLUT_Linear_32f_C3IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[3], const Npp32f ∗ *pLevels*[3], int *nLevels*[3])

3 channel 32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.146 NppStatus nppiLUT_Linear_32f_C3R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[3], const Npp32f ∗ *pLevels*[3], int *nLevels*[3])

3 channel 32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.147 NppStatus nppiLUT_Linear_32f_C4IR (Npp32f ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[4], const Npp32f ∗ *pLevels*[4], int *nLevels*[4])

4 channel 32-bit floating point look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points using no interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 1024 (the current size limit).

7.9.2.148 NppStatus nppiLUT_Linear_32f_C4R (const Npp32f ∗ *pSrc*, int *nSrcStep*, Npp32f ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32f ∗ *pValues*[4], const Npp32f ∗ *pLevels*[4], int *nLevels*[4])

4 channel 32-bit floating point look-up-table color conversion.

The LUT is derived from a set of user defined mapping points using linear interpolation.

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 number of 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 or greater than 1024 (the current size limit).

7.9.2.149 NppStatus nppiLUT_Linear_8u_AC4IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

4 channel 8-bit unsigned linear interpolated look-up-table in place 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.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 256.

7.9.2.150 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 linear interpolated 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 number of 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 or greater than 256.

7.9.2.151 NppStatus nppiLUT_Linear_8u_C1IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

8-bit unsigned linear interpolated look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through linear interpolation.

Parameters:

    pSrcDst In-Place Image Pointer.

    nSrcDstStep In-Place-Image Line Step.

    oSizeROI Region-of-Interest (ROI).

    pValues Pointer to an array of user defined OUTPUT values (this is a device memory pointer)

    pLevels Pointer to an array of user defined INPUT values (this is a device memory pointer)

    nLevels Number of user defined number of 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 or greater than 256.

7.9.2.152 NppStatus nppiLUT_Linear_8u_C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*, const Npp32s ∗ *pLevels*, int *nLevels*)

8-bit unsigned linear interpolated 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 number of 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 or greater than 256.

7.9.2.153 NppStatus nppiLUT_Linear_8u_C3IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[3], const Npp32s ∗ *pLevels*[3], int *nLevels*[3])

3 channel 8-bit unsigned linear interpolated look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through linear interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-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 number of 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 or greater than 256.

7.9.2.154 NppStatus nppiLUT_Linear_8u_C3R (const Npp8u * *pSrc*, int *nSrcStep*, Npp8u * *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s * *pValues*[3], const Npp32s * *pLevels*[3], int *nLevels*[3])

3 channel 8-bit unsigned linear interpolated 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 number of 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 or greater than 256.

7.9.2.155 NppStatus nppiLUT_Linear_8u_C4IR (Npp8u * *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, const Npp32s * *pValues*[4], const Npp32s * *pLevels*[4], int *nLevels*[4])

4 channel 8-bit unsigned linear interpolated look-up-table in place color conversion.

The LUT is derived from a set of user defined mapping points through linear interpolation.

Parameters:

> *pSrcDst* In-Place Image Pointer.
>
> *nSrcDstStep* In-Place-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 number of 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 or greater than 256.

7.9.2.156   NppStatus nppiLUT_Linear_8u_C4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32s ∗ *pValues*[4], const Npp32s ∗ *pLevels*[4], int *nLevels*[4])

4 channel 8-bit unsigned linear interpolated 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 number of 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 or greater than 256.

7.9.2.157   NppStatus nppiLUT_Trilinear_8u_AC4IR (Npp8u ∗ *pSrcDst*, int *nSrcDstStep*, NppiSize *oSizeROI*, Npp32u ∗ *pValues*, Npp8u ∗ *pLevels*[3], int *aLevels*[3])

Four channel 8-bit unsigned 3D trilinear interpolated look-up-table in place color conversion, not affecting alpha.

Alpha channel is the last channel and is not processed.

The LUT is derived from a set of user defined mapping points through trilinear interpolation.

Parameters:

pSrcDst In-Place Image Pointer.

nSrcDstStep In-Place-Image Line Step.

oSizeROI Region-of-Interest (ROI).

pValues Device pointer aLevels[2] number of contiguous 2D x,y planes of 4-byte packed RGBX values containing the user defined base OUTPUT values at that x,y, and z (R,G,B) level location. Each level must contain x ∗ y 4-byte packed pixel values (4th byte is used for alignement only and is ignored) in row (x) order.

pLevels Host pointer to an array of 3 host pointers, one per cube edge, pointing to user defined INPUT level values.

aLevels Host pointer to an array of 3 user defined number of input/output mapping points, one per 3D cube edge. aLevels[0] represents the number of x axis levels (Red), aLevels[1] represents the number of y axis levels (Green), and aLevels[2] represets the number of z axis levels (Blue).

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 or greater than 256.

7.9.2.158   NppStatus nppiLUT_Trilinear_8u_AC4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp32u ∗ *pValues*, Npp8u ∗ *pLevels*[3], int *aLevels*[3])

Four channel 8-bit unsigned 3D trilinear interpolated look-up-table color conversion, not affecting alpha.

Alpha channel is the last channel and is not processed.

The LUT is derived from a set of user defined mapping points through trilinear interpolation.

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 Device pointer to aLevels[2] number of contiguous 2D x,y planes of 4-byte packed RGBX values containing the user defined base OUTPUT values at that x,y, and z (R,G,B) level location. Each level must contain x ∗ y 4-byte packed pixel values (4th byte is used for alignement only and is ignored) in row (x) order.

pLevels Host pointer to an array of 3 host pointers, one per cube edge, pointing to user defined INPUT level values.

aLevels Host pointer to an array of 3 user defined number of input/output mapping points, one per 3D cube edge. aLevels[0] represents the number of x axis levels (Red), aLevels[1] represents the number of y axis levels (Green), and aLevels[2] represets the number of z axis levels (Blue).

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 or greater than 256.

7.9.2.159 NppStatus nppiLUT_Trilinear_8u_C4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, Npp32u ∗ *pValues*, Npp8u ∗ *pLevels*[3], int *aLevels*[3])

Four channel 8-bit unsigned 3D trilinear interpolated look-up-table color conversion, with alpha copy.

Alpha channel is the last channel and is copied to the destination unmodified.

The LUT is derived from a set of user defined mapping points through trilinear interpolation.

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 Device pointer to aLevels[2] number of contiguous 2D x,y planes of 4-byte packed RGBX values containing the user defined base OUTPUT values at that x,y, and z (R,G,B) level location. Each level must contain x ∗ y 4-byte packed pixel values (4th byte is used for alignement only and is ignored) in row (x) order.

pLevels Host pointer to an array of 3 host pointers, one per cube edge, pointing to user defined INPUT level values.

aLevels Host pointer to an array of 3 user defined number of input/output mapping points, one per 3D cube edge. aLevels[0] represents the number of x axis levels (Red), aLevels[1] represents the number of y axis levels (Green), and aLevels[2] represets the number of z axis levels (Blue).

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 or greater than 256.

7.9.2.160 NppStatus nppiLUTPalette_16u24u_C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u ∗ *pTable*, int *nBitSize*)

One channel 16-bit unsigned bit range restricted 24-bit unsigned palette look-up-table color conversion with 24-bit unsigned destination output per pixel.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step (3 unsigned bytes per pixel).

oSizeROI Region-of-Interest (ROI).

pTable Pointer to an array of user defined OUTPUT palette values (this is a device memory pointer)

nBitSize Number of least significant bits (must be > 0 and $<= 16$) of each source pixel value to use as index into palette table during conversion.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

- NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 16.

7.9.2.161 NppStatus nppiLUTPalette_16u32u_C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp32u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32u ∗ *pTable*, int *nBitSize*)

One channel 16-bit unsigned bit range restricted 32-bit palette look-up-table color conversion with 32-bit unsigned destination output per pixel.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step (4 bytes per pixel).

oSizeROI Region-of-Interest (ROI).

pTable Pointer to an array of user defined OUTPUT palette values (this is a device memory pointer)

nBitSize Number of least significant bits (must be > 0 and $<= 16$) of each source pixel value to use as index into palette table during conversion.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

- NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 16.

7.9.2.162 NppStatus nppiLUTPalette_16u8u_C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u ∗ *pTable*, int *nBitSize*)

One channel 16-bit unsigned bit range restricted 8-bit unsigned palette look-up-table color conversion with 8-bit unsigned destination output per pixel.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step (1 unsigned byte per pixel).

oSizeROI Region-of-Interest (ROI).

pTable Pointer to an array of user defined OUTPUT palette values (this is a device memory pointer)

nBitSize Number of least significant bits (must be > 0 and $<= 16$) of each source pixel value to use as index into palette table during conversion.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

- NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 16.

7.9.2.163 NppStatus nppiLUTPalette_16u_AC4R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u ∗ *pTables*[3], int *nBitSize*)

Four channel 16-bit unsigned bit range restricted palette look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values. 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).

pTables Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT palette values.

nBitSize Number of least significant bits (must be > 0 and $<= 16$) of each source pixel value to use as index into palette table during conversion.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

- NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 16.

7.9.2.164 NppStatus nppiLUTPalette_16u_C1R (const Npp16u ∗ *pSrc*, int *nSrcStep*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u ∗ *pTable*, int *nBitSize*)

One channel 16-bit unsigned bit range restricted palette look-up-table color conversion.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette 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).

pTable Pointer to an array of user defined OUTPUT palette values (this is a device memory pointer)

nBitSize Number of least significant bits (must be > 0 and $<= 16$) of each source pixel value to use as index into palette table during conversion.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

- NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 16.

7.9.2.165 NppStatus nppiLUTPalette_16u_C3R (const Npp16u $*$ *pSrc*, int *nSrcStep*, Npp16u $*$ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u $*$ *pTables*[3], int *nBitSize*)

Three channel 16-bit unsigned bit range restricted palette look-up-table color conversion.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette 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).

pTables Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT palette values.

nBitSize Number of least significant bits (must be > 0 and $<= 16$) of each source pixel value to use as index into palette table during conversion.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

- NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 16.

7.9.2.166 NppStatus nppiLUTPalette_16u_C4R (const Npp16u $*$ *pSrc*, int *nSrcStep*, Npp16u $*$ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u $*$ *pTables*[4], int *nBitSize*)

Four channel 16-bit unsigned bit range restricted palette look-up-table color conversion.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette 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).

pTables Host pointer to an array of 4 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT palette values.

nBitSize Number of least significant bits (must be > 0 and $<= 16$) of each source pixel value to use as index into palette table during conversion.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

- NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 16.

7.9.2.167 NppStatus nppiLUTPalette_8u24u_C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u ∗ *pTable*, int *nBitSize*)

One channel 8-bit unsigned bit range restricted 24-bit palette look-up-table color conversion with 24-bit destination output per pixel.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values.

Parameters:

pSrc Source-Image Pointer.

nSrcStep Source-Image Line Step.

pDst Destination-Image Pointer.

nDstStep Destination-Image Line Step (3 bytes per pixel).

oSizeROI Region-of-Interest (ROI).

pTable Pointer to an array of user defined OUTPUT palette values (this is a device memory pointer)

nBitSize Number of least significant bits (must be > 0 and $<= 8$) of each source pixel value to use as index into palette table during conversion.

Returns:

Image Data Related Error Codes, ROI Related Error Codes

- NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 8.

7.9.2.168 NppStatus nppiLUTPalette_8u32u_C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp32u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp32u ∗ *pTable*, int *nBitSize*)

One channel 8-bit unsigned bit range restricted 32-bit palette look-up-table color conversion with 32-bit destination output per pixel.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values.

Parameters:

   pSrc Source-Image Pointer.

   nSrcStep Source-Image Line Step.

   pDst Destination-Image Pointer.

   nDstStep Destination-Image Line Step (4 bytes per pixel).

   oSizeROI Region-of-Interest (ROI).

   pTable Pointer to an array of user defined OUTPUT palette values (this is a device memory pointer)

   nBitSize Number of least significant bits (must be > 0 and $<= 8$) of each source pixel value to use as index into palette table during conversion.

Returns:

   Image Data Related Error Codes, ROI Related Error Codes

   - NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 8.

7.9.2.169 NppStatus nppiLUTPalette_8u_AC4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u ∗ *pTables*[3], int *nBitSize*)

Four channel 8-bit unsigned bit range restricted palette look-up-table color conversion, not affecting Alpha.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values. 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).

   pTables Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT palette values.

   nBitSize Number of least significant bits (must be > 0 and $<= 8$) of each source pixel value to use as index into palette table during conversion.

Returns:

   Image Data Related Error Codes, ROI Related Error Codes

   - NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 8.

7.9.2.170 NppStatus nppiLUTPalette_8u_C1R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u ∗ *pTable*, int *nBitSize*)

One channel 8-bit unsigned bit range restricted palette look-up-table color conversion.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette 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).
>
> *pTable* Pointer to an array of user defined OUTPUT palette values (this is a device memory pointer)
>
> *nBitSize* Number of least significant bits (must be > 0 and $<= 8$) of each source pixel value to use as index into palette table during conversion.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes
>
> - NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 8.

7.9.2.171 NppStatus nppiLUTPalette_8u_C3R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u ∗ *pTables*[3], int *nBitSize*)

Three channel 8-bit unsigned bit range restricted palette look-up-table color conversion.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette 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).
>
> *pTables* Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT palette values.
>
> *nBitSize* Number of least significant bits (must be > 0 and $<= 8$) of each source pixel value to use as index into palette table during conversion.

Returns:

> Image Data Related Error Codes, ROI Related Error Codes
>
> - NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 8.

7.9.2.172 NppStatus nppiLUTPalette_8u_C4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u ∗ *pTables*[4], int *nBitSize*)

Four channel 8-bit unsigned bit range restricted palette look-up-table color conversion.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette 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).
>
>   ***pTables*** Host pointer to an array of 4 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT palette values.
>
>   ***nBitSize*** Number of least significant bits (must be > 0 and $<= 8$) of each source pixel value to use as index into palette table during conversion.

Returns:

>   Image Data Related Error Codes, ROI Related Error Codes
>
>   - NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 8.

7.9.2.173 NppStatus nppiLUTPaletteSwap_16u_C3A0C4R (const Npp16u ∗ *pSrc*, int *nSrcStep*, int *nAlphaValue*, Npp16u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp16u ∗ *pTables*[3], int *nBitSize*)

Three channel 16-bit unsigned source bit range restricted palette look-up-table color conversion to four channel 16-bit unsigned destination output with alpha.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values. This function also reverses the source pixel channel order in the destination so the Alpha channel is the first channel.

Parameters:

>   ***pSrc*** Source-Image Pointer.
>
>   ***nSrcStep*** Source-Image Line Step (3 unsigned short integers per pixel).
>
>   ***nAlphaValue*** Signed alpha value that will be used to initialize the pixel alpha channel position in all modified destination pixels.
>
>   ***pDst*** Destination-Image Pointer.
>
>   ***nDstStep*** Destination-Image Line Step (4 unsigned short integers per pixel with alpha).
>
>   ***oSizeROI*** Region-of-Interest (ROI).
>
>   ***pTables*** Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT palette values. Alpha values < 0 or > 65535 will cause destination pixel alpha channel values to be unmodified.
>
>   ***nBitSize*** Number of least significant bits (must be > 0 and $<= 16$) of each source pixel value to use as index into palette table during conversion.

Returns:

>   Image Data Related Error Codes, ROI Related Error Codes
>
>   - NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 16.

7.9.2.174 NppStatus nppiLUTPaletteSwap_8u_C3A0C4R (const Npp8u ∗ *pSrc*, int *nSrcStep*, int *nAlphaValue*, Npp8u ∗ *pDst*, int *nDstStep*, NppiSize *oSizeROI*, const Npp8u ∗ *pTables*[3], int *nBitSize*)

Three channel 8-bit unsigned source bit range restricted palette look-up-table color conversion to four channel 8-bit unsigned destination output with alpha.

The LUT is derived from a set of user defined mapping points in a palette and source pixels are then processed using a restricted bit range when looking up palette values. This function also reverses the source pixel channel order in the destination so the Alpha channel is the first channel.

Parameters:

    pSrc Source-Image Pointer.

    nSrcStep Source-Image Line Step (3 bytes per pixel).

    nAlphaValue Signed alpha value that will be used to initialize the pixel alpha channel position in all modified destination pixels.

    pDst Destination-Image Pointer.

    nDstStep Destination-Image Line Step (4 bytes per pixel with alpha).

    oSizeROI Region-of-Interest (ROI).

    pTables Host pointer to an array of 3 device memory pointers, one per color CHANNEL, pointing to user defined OUTPUT palette values. Alpha values < 0 or > 255 will cause destination pixel alpha channel values to be unmodified.

    nBitSize Number of least significant bits (must be > 0 and $<= 8$) of each source pixel value to use as index into palette table during conversion.

Returns:

    Image Data Related Error Codes, ROI Related Error Codes

       • NPP_LUT_PALETTE_BITSIZE_ERROR if nBitSize is < 1 or > 8.

Chapter 8

Data Structure Documentation

8.1 NPP_ALIGN_16 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.

- Npp64f re

    Real part.

- Npp64f im

    Imaginary part.

8.1.1 Detailed Description

Complex Number This struct represents a long long complex number.

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

8.1.2 Field Documentation

8.1.2.1 Npp64f NPP_ALIGN_16::im

Imaginary part.

8.1.2.2 Npp64s NPP_ALIGN_16::im

Imaginary part.

8.1.2.3 Npp64f NPP_ALIGN_16::re

Real part.

8.1.2.4 Npp64s NPP_ALIGN_16::re

Real part.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.2   NPP_ALIGN_8 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.

- Npp32s re

     Real part.

- Npp32s im

     Imaginary part.

- Npp32f re

     Real part.

- Npp32f im

     Imaginary part.

8.2.1   Detailed Description

Complex Number This struct represents an unsigned int complex number.

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

Complex Number This struct represents a signed int complex number.

8.2.2   Field Documentation

8.2.2.1   Npp32f NPP_ALIGN_8::im

Imaginary part.

8.2.2.2   Npp32s NPP_ALIGN_8::im

Imaginary part.

8.2.2.3   Npp32u NPP_ALIGN_8::im

Imaginary part.

8.2.2.4 Npp32f NPP_ALIGN_8::re

Real part.

8.2.2.5 Npp32s NPP_ALIGN_8::re

Real part.

8.2.2.6 Npp32u NPP_ALIGN_8::re

Real part.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.3 NppiHaarBuffer Struct Reference

```
#include <nppdefs.h>
```

Data Fields

- int haarBufferSize

  size of the buffer

- Npp32s ∗ haarBuffer

  buffer

8.3.1 Field Documentation

8.3.1.1 Npp32s∗ NppiHaarBuffer::haarBuffer

buffer

8.3.1.2 int NppiHaarBuffer::haarBufferSize

size of the buffer

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.4 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

8.4.1 Field Documentation

8.4.1.1 Npp32s∗ NppiHaarClassifier_32f::classifiers

packed classifier data 40 bytes each

8.4.1.2 NppiSize NppiHaarClassifier_32f::classifierSize

8.4.1.3 size_t NppiHaarClassifier_32f::classifierStep

8.4.1.4 Npp32s∗ NppiHaarClassifier_32f::counterDevice

8.4.1.5 int NppiHaarClassifier_32f::numClassifiers

number of classifiers

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.5 NppiPoint Struct Reference

2D Point

```
#include <nppdefs.h>
```

Data Fields

- int x

    x-coordinate.

- int y

    y-coordinate.

8.5.1 Detailed Description

2D Point

8.5.2 Field Documentation

8.5.2.1 int NppiPoint::x

x-coordinate.

8.5.2.2 int NppiPoint::y

y-coordinate.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.6 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 (lowest memory address).

- int y

  y-coordinate of upper left corner (lowest memory address).

- int width

  Rectangle width.

- int height

  Rectangle height.

8.6.1 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.

8.6.2 Field Documentation

8.6.2.1 int NppiRect::height

Rectangle height.

8.6.2.2 int NppiRect::width

Rectangle width.

8.6.2.3 int NppiRect::x

x-coordinate of upper left corner (lowest memory address).

8.6.2.4 int NppiRect::y

y-coordinate of upper left corner (lowest memory address).

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.7 NppiSize Struct Reference

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

```
#include <nppdefs.h>
```

Data Fields

- int width

    Rectangle width.

- int height

    Rectangle height.

8.7.1 Detailed Description

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

8.7.2 Field Documentation

8.7.2.1 int NppiSize::height

Rectangle height.

8.7.2.2 int NppiSize::width

Rectangle width.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

8.8 NppLibraryVersion Struct Reference

```
#include <nppdefs.h>
```

Data Fields

- int major

    Major version number.

- int minor

    Minor version number.

- int build

    Build number.

8.8.1 Field Documentation

8.8.1.1 int NppLibraryVersion::build

Build number.

This reflects the nightly build this release was made from.

8.8.1.2 int NppLibraryVersion::major

Major version number.

8.8.1.3 int NppLibraryVersion::minor

Minor version number.

The documentation for this struct was generated from the following file:

- C:/src/sw/rel/gpgpu/toolkit/r8.0/NPP/npp/include/nppdefs.h

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