Imperx Tools SDK

3.3.0.51

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Contents

Chapter 1

Main Page

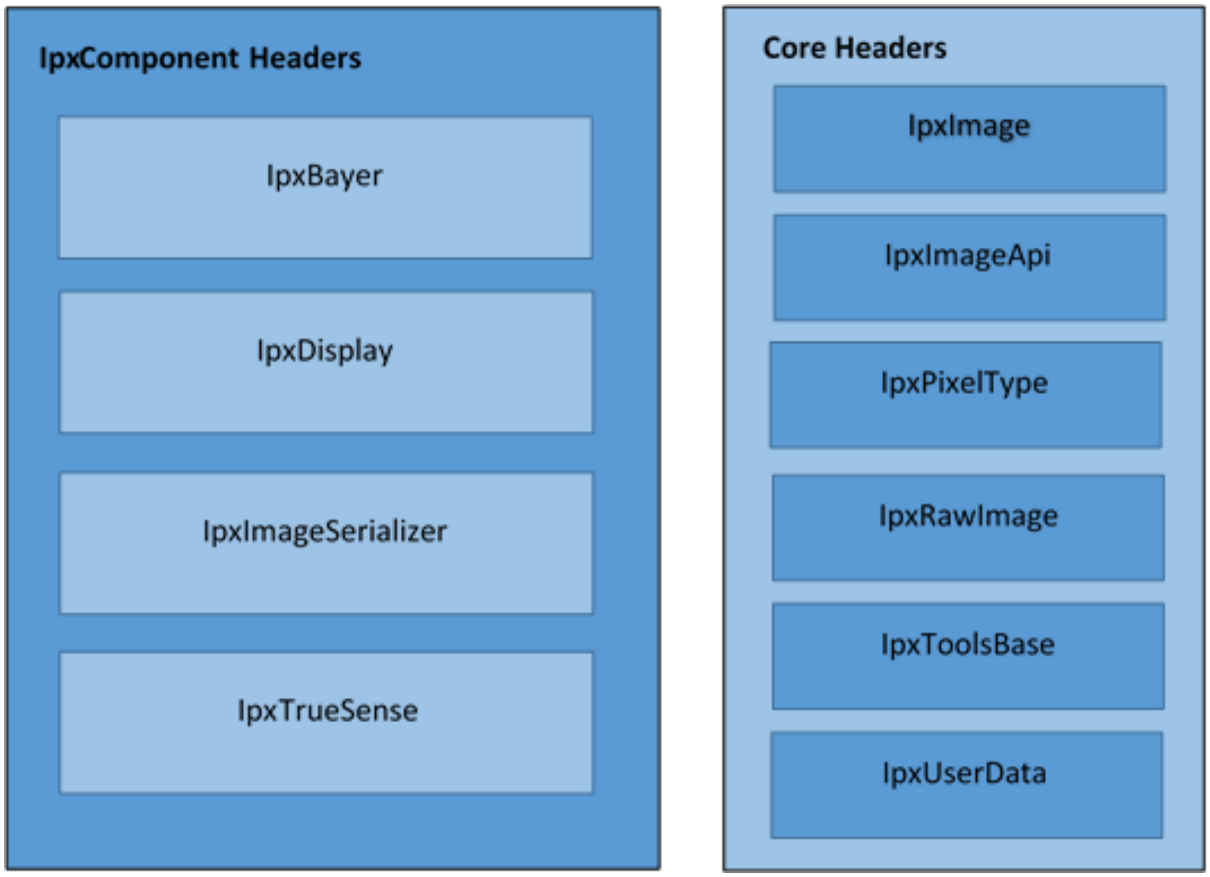
The Imperx Tools is designed to provide software developers with API for ease of integrating Imperx camera's images into their software application. The API includes several component modules implementing the imaging functions.

The API consist of several main classes that implement base IpxComponent class. The main classes are :

- **IpxBayer IpxComponent Header** - A header file containing C++ Class and C-Interface functions for IpxBayer component that contains methods to convert Bayer CFA Demosaic images.
- **IpxDisplay IpxComponent Header** - A header file containing C++ Class and C-Interface functions for IpxDisplay component that contains methods to convert and display images.
- **IpxImageSerializer IpxComponent Header** - A header file containing C++ Class and C-Interface functions for IpxImageSerializer component that contains methods to serialize IpxImage images.
- **IpxTrueSense IpxComponent Header** - A header file containing C++ Class and C-Interface functions for IpxTrueSense component that contains methods to convert TrueSense images.

The Core features consist of defines, macros and functions used for the Imperx Image camera's image manipulation.

- **IpxImage Header** - A header file containing defines, macros, functions, and data structure for the description of Imperx Images
- **IpxImageApi Header** - A header file containing Core image functions
- **IpxPixelType Header** - A header file containing the Image Pixel Types
- **IpxToolBase Header** - A header file containing the defines/macros for errors and the base IpxComponent class
- **IpxUserData Header** - A header file containing the user data structure intended to store additional information about the image



IpxTools IpxComponents and Core Headers

Chapter 2

Module Index

2.1 Modules

Here is a list of all modules:

Chapter 3

Class Index

3.1 Class List

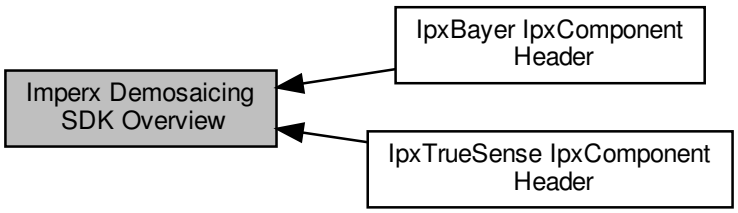
Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

Module Documentation

4.1 Imperx Demosaicing SDK Overview

Collaboration diagram for Imperx Demosaicing SDK Overview:



Modules

- IpxBayer IpxComponent Header

  Bayer functions and classes with IpxComponent features.
- IpxTrueSense IpxComponent Header

  TrueSense functions and classes with IpxComponent features.

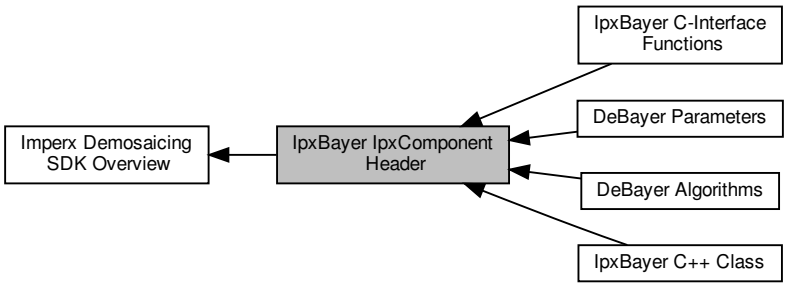
4.1.1 Detailed Description

Imperx Demosaicing SDK dedicated to the conversion of RAW images with Bayer Color Filter Array and Kodak True↩ Sense Color Filter Array to RGB bitmap. Demosaicing SDK functions allows to convert 8 and 16 bits per pixel RAW images to 3-channel or 4-channel RGB or BGR bitmaps with respectively 8 and 16 bits color depth.

4.2 IpxBayer IpxComponent Header

Bayer functions and classes with IpxComponent features.

Collaboration diagram for IpxBayer IpxComponent Header:



Modules

- DeBayer Parameters

  Defines for DeBayer Parameters.
- DeBayer Algorithms

  Type of DeBayer Algorithms.
- IpxBayer C++ Class

  C++ Class for IpxBayer.
- IpxBayer C-Interface Functions

  C-interface functions for IpxBayer.

4.2.1 Detailed Description

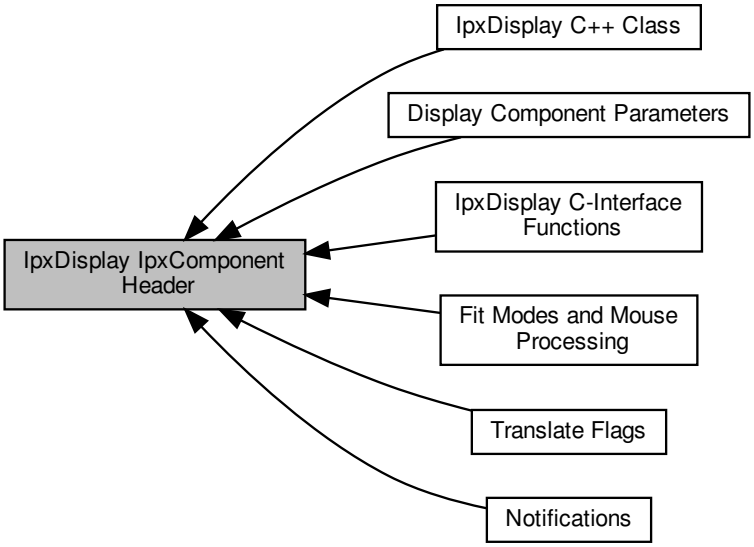
Bayer functions and classes with IpxComponent features.

This module is responsible for conversion CFA pattern (BAYER) to color image.

4.3 IpxDisplay IpxComponent Header

Display functions and classes with IpxComponent features.

Collaboration diagram for IpxDisplay IpxComponent Header:



Modules

- Display Component Parameters

  Defines and Macros for Display Component Parameters.
- Notifications

  Defines for Notifications.
- Translate Flags

  Defines for Translate Flags.
- Fit Modes and Mouse Processing

  Defines for Fit Modes and Mouse Processing.
- IpxDisplay C++ Class

  C++ Class for IpxDisplay.
- IpxDisplay C-Interface Functions

  C-interface functions for IpxDisplay.

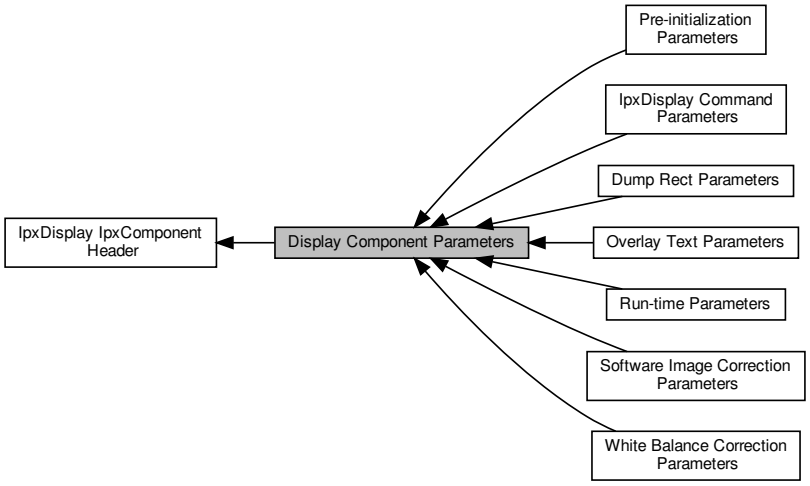
4.3.1 Detailed Description

Display functions and classes with IpxComponent features.

4.4 Display Component Parameters

Defines and Macros for Display Component Parameters.

Collaboration diagram for Display Component Parameters:



Modules

- Pre-initialization Parameters

  Defines for Pre-Initialization Parameters.
- Run-time Parameters

  Defines for Run-time Parameters (View Management)
- Software Image Correction Parameters

  Defines for Software Image Correction Parameters.
- White Balance Correction Parameters

  Defines for White Balance Correction Parameters.
- Overlay Text Parameters

  Defines for Overlay Text Parameters.
- Dump Rect Parameters

  Defines for Dump Rect Parameters.
- IpxDisplay Command Parameters

  Defines for IpxDisplay Command Parameters.

4.4.1 Detailed Description

Defines and Macros for Display Component Parameters.

4.5 IpxImage Header

Defines, macros, and functions for IpxImage.

Classes

- struct IpxImage
  Data structure for description of Imperx Image.

Macros

- #define IPX_IMAGE_MAJOR_VERSION 2
  Defines major version of image data.
- #define IPX_IMAGE_MINOR_VERSION 0
  Defines minor version of image data.
- #define IPX_IMAGE_VERSION ((IPX_IMAGE_MAJOR_VERSION<<16)|IPX_IMAGE_MINOR_VERSION)
  Defines whole version of image data.
- #define IPX_GET_MAJOR_VERSION(version) (version>>16)
  Gets major version of image data.
- #define IPX_GET_MINOR_VERSION(version) ((version<<16)>>16)
  Gets minor version of image data.
- #define IPX_IS_IMAGE_HDR(iiData) ((iiData) != NULL && ((const IpxData*)(iiData))->nSize == sizeof(IpxImage))
  Checks whether data is IpxImage type.
- #define IPX_GET_FIRST_PIXEL_DATA(image) image->imageData
  Gets pointer to data of first pixel.
- #define IPX_GET_PIXEL_DATA(image, w, h, c)
  Gets pointer to data of defined pixel.

Functions

- IPX_INLINE bool IpxInitPixelTypeDescr (uint32_t pixelType, IpxPixelTypeDescr *descr)
  Fills descriptor on base value of pixel type.

4.5.1 Detailed Description

Defines, macros, and functions for IpxImage.

4.5.2 Function Documentation

4.5.2.1 IpxInitPixelTypeDescr()

```
IPX_INLINE bool IpxInitPixelTypeDescr (
            uint32_t pixelType,
            IpxPixelTypeDescr * descr )
```

Fills descriptor on base value of pixel type.

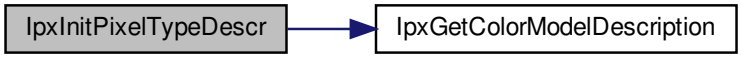
Parameters

pixelType	Pixel type.
descr	Descriptor of pixel format.

Returns

If the function succeeds, the return value is 'true'. If the function fails, the return value is 'false'.

Here is the call graph for this function:



4.6 IpxImageApi Header

Defines, macros, and functions for IpxImageApi.

Macros

- #define IPX_FREE(ptr) IpxFree((void**)(ptr))

  That is IpxFree wrapper.
- #define IPX_ALLOC(ptr, size) IpxAlloc((void**)(ptr), size)

  That is IpxAlloc wrapper.

Typedefs

- typedef void *(IPX_CDECL * PAllocFunc) (size_t size)

  Signature of function that allocates a memory block.
- typedef int(IPX_CDECL * PFreeFunc) (void *ptr)

  Signature of function that deallocates a memory block.

Functions

- IPXIMAGE_API IpxError IpxSetMemoryManager (PAllocFunc allocFunc, PFreeFunc freeFunc)

  Sets user-defined memory management functions.
- IPXIMAGE_API IpxError IpxAlloc (void **ptr, size_t size)

  Allocates a memory block.
- IPXIMAGE_API IpxError IpxFree (void **ptr)

  Deallocates a memory block.

- IPXIMAGE_API IpxError IpxCreateEmptyImageHeader (IpxImage **image)

  Allocates memory for IpxImage header.
- IPXIMAGE_API IpxError IpxCreateImageHeader (IpxImage **image, IpxSize size, uint32_t pixelType, char *imageData, uint32_t rowSize, int origin)

  Allocates memory for IpxImage header and initializes it.
- IPXIMAGE_API IpxError IpxInitImageHeader (IpxImage *image, IpxSize size, uint32_t pixelType, char *image↩ Data, uint32_t rowSize, int origin)

  Initializes IpxImage header.
- IPXIMAGE_API IpxError IpxCreateImageData (IpxImage *image)

  Allocates memory for IpxImage data.
- IPXIMAGE_API IpxError IpxCreateImage (IpxImage **image, IpxSize size, uint32_t pixelType)

  Allocates memory for IpxImage header and data.
- IPXIMAGE_API IpxError IpxReleaseImageHeader (IpxImage **image)

  Releases memory of IpxImage header.
- IPXIMAGE_API IpxError IpxReleaseImage (IpxImage **image)

  Releases memory of IpxImage header and data.
- IPXIMAGE_API IpxError IpxCloneImage (IpxImage **clone, const IpxImage *image)

Creates a new copy of IpxImage.

- IPXIMAGE_API IpxError IpxCloneImageExt (IpxImage **clone, const IpxImage *image)

  Creates a new copy of IpxImage with restriction by ROI and COI.

- IPXIMAGE_API IpxError IpxCopyImageHeader (IpxImage *dstImage, const IpxImage *srcImage)

  Copies source image header to destination image.

- IPXIMAGE_API IpxError IpxCopyImage (IpxImage *dstImage, const IpxImage *srcImage)

  Copy source image to destination image.

- IPXIMAGE_API IpxError IpxCopyImageChannelChar (unsigned char *dst, int *dstSize, const IpxImage *src↩ Image, const int channel)

  Copies a color channel of source image to a chars array.

- IPXIMAGE_API IpxError IpxCopyImageChannelShort (unsigned short *dst, int *dstSize, const IpxImage *src↩ Image, const int channel)

  Copies a color channel of source image to a short array.

- IPXIMAGE_API IpxError IpxCopyImageChannelInt (int *dst, int *dstSize, const IpxImage *srcImage, const int channel)

  Copies a color channel of source image to a integer array.

- IPXIMAGE_API IpxError IpxCopyImageChannelFloat (float *dst, int *dstSize, const IpxImage *srcImage, const int channel)

  Copies a color channel of source image to a float array.

4.6.1 Detailed Description

Defines, macros, and functions for IpxImageApi.

4.6.2 Typedef Documentation

4.6.2.1 PAllocFunc

```
typedef void*(IPX_CDECL * PAllocFunc) (size_t size)
```

Signature of function that allocates a memory block.

4.6.2.2 PFreeFunc

```
typedef int(IPX_CDECL * PFreeFunc) (void *ptr)
```

Signature of function that deallocates a memory block.

4.6.3 Function Documentation

4.6.3.1 IpxSetMemoryManager()

```
IPXIMAGE_API IpxError IpxSetMemoryManager (
            PAllocFunc allocFunc,
            PFreeFunc freeFunc )
```

Sets user-defined memory management functions.

Parameters

allocFunc	Pointer to the function that allocates a memory block.
freeFunc	Pointer to the function that deallocates a memory block.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

It sets user-defined memory managment functions (substitutors for malloc and free) that will be called by IpxAlloc, IpxFree and higher-level functions (e.g. IpxCreateImage). If the user wants to use the default functions, then it should call IpxSetMemoryManager(NULL, NULL).

For example:

```
IpxSetMemoryManager(NULL, NULL);
. . . . .
void* ptr = NULL;
if (IPX_ERR_OK != IpxAlloc(&ptr, 12345))
{
 IpxError error;
 IpxGetLastError(&error);
 ::_ftprintf_s(file, _T("%s: %d; %s\n"), error.severity, error.code, error.description);
 return error.code;
}
. . . . .
if (IPX_ERR_OK != IpxFree(&ptr))
{
 IpxError error;
 IpxGetLastError(&error);
 ::_ftprintf_s(file, _T("%s: %d; %s\n"), error.severity, error.code, error.description);
 return error.code;
}
```

4.6.3.2 IpxAlloc()

```
IPXIMAGE_API IpxError IpxAlloc (
             void ** ptr,
             size_t size )
```

Allocates a memory block.

Parameters

ptr	Pointer to the allocated space.
size	Number of bytes to allocate.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function is<malloc> wrapper. if there is no enough memory, the function raises an error.

See IpxSetMemoryManager for usage example.

See also

IpxFree

4.6.3.3 IpxFree()

```
IPXIMAGE_API IpxError IpxFree (
             void ** ptr )
```

Deallocates a memory block.

Parameters

ptr	Previously allocated memory block to be freed.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function is a free wrapper. Passing pointer to NULL pointer is Ok: nothing happens in this case Test requirements

See IpxSetMemoryManager for usage example.

See also

IpxAlloc

4.6.3.4 IpxCreateEmptyImageHeader()

```
IPXIMAGE_API IpxError IpxCreateEmptyImageHeader (
             IpxImage ** image )
```

Allocates memory for IpxImage header.

Parameters

image	Pointer to image header, that will be created.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function don't allocate memory for image data and don't set parameters in image header.

See also

IpxCreateImageHeader
IpxReleaseImageHeader
IpxImage

4.6.3.5 IpxCreateImageHeader()

```
IPXIMAGE_API IpxError IpxCreateImageHeader (
             IpxImage ** image,
             IpxSize size,
             uint32_t pixelType,
             char * imageData,
             uint32_t rowSize,
             int origin )
```

Allocates memory for IpxImage header and initializes it.

Parameters

image	Pointer to image header, that will be created.
size	Horizontal and vertical size of image.
pixelType	Type of image pixel.
imageData	Pointer to image data.
rowSize	Size of image row in bytes.
origin	Origin of image coordinate system.

Returns

If the function succeeds, the return value is 0. If the function fails, the return value is a non-zero code.

Note

This function uses a given image data. For example:

```
IpxImage* img = NULL;
IpxSize size;
size.height = 480;
size.width = 640;
if (IPX_ERR_OK == IpxCreateImageHeader(&img, size,
      II_PIX_RGB8, NULL, 0))
{
 IpxError error;
 IpxGetLastError(&error);
 return error.code;
}
. . . . .
IpxReleaseImage(&img);
```

//

See also

IpxCreateImage
IpxReleaseImage
IpxImage

4.6.3.6 IpxInitImageHeader()

```
IPXIMAGE_API IpxError IpxInitImageHeader (
             IpxImage * image,
             IpxSize size,
             uint32_t pixelType,
             char * imageData,
             uint32_t rowSize,
             int origin )
```

Initializes IpxImage header.

Parameters

image	Pointer to image header.
size	Horizontal and vertical size of image.
pixelType	Type of image pixel.
imageData	Pointer to image data.
rowSize	Size of image row in bytes.
origin	Origin of image coordinate system.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function uses a given image data. For example:

```
IpxImage* img = NULL;
if (IPX_ERR_OK == IpxCreateEmptyImageHeader(&img))
{
 IpxError error;
 IpxGetLastError(&error);
 return error.code;
}
IpxSize size;
size.height = 480;
size.width = 640;
if (IPX_ERR_OK == IpxInitImageHeader(img, size,
      II_PIX_RGB8, NULL, 0))
{
 IpxReleaseImageHeader(&img);
 IpxError error;
 IpxGetLastError(&error);
 return error.code;
}
. . . . .
IpxReleaseImage(&img);
```

See also

IpxCreateImage
IpxReleaseImage
IpxImage

4.6.3.7 IpxCreateImageData()

```
IPXIMAGE_API IpxError IpxCreateImageData (
            IpxImage * image )
```

Allocates memory for IpxImage data.

Parameters

image	Pointer to image header.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function allocates memory for image data in accordance to parameters of image header.

See also

IpxCreateImageHeader
IpxReleaseImage
IpxImage

4.6.3.8 IpxCreateImage()

```
IPXIMAGE_API IpxError IpxCreateImage (
            IpxImage ** image,
            IpxSize size,
            uint32_t pixelType )
```

Allocates memory for IpxImage header and data.

Parameters

image	Pointer to IpxImage, that will be created.
size	Horizontal and vertical size of image.
pixelType	Type of image pixel.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function allocates memory for image header and data.

See also

IpxCreateImageHeader
IpxReleaseImage
IpxImage

4.6.3.9 IpxReleaseImageHeader()

```
IPXIMAGE_API IpxError IpxReleaseImageHeader (
             IpxImage ** image )
```

Releases memory of IpxImage header.

Parameters

image	Pointer to IpxImage image, that will be created.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function deallocates memory of image header, but not memory of image data.

See also

IpxCreateImageHeader
IpxReleaseImage
IpxImage

4.6.3.10 IpxReleaseImage()

```
IPXIMAGE_API IpxError IpxReleaseImage (
             IpxImage ** image )
```

Releases memory of IpxImage header and data.

Parameters

image	Pointer to IpxImage image, that will be created.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function deallocates memory of image header and data.

See also

IpxCreateImageHeader
IpxCreateImage
IpxImage

4.6.3.11 IpxCloneImage()

```
IPXIMAGE_API IpxError IpxCloneImage (
             IpxImage ** clone,
             const IpxImage * image )
```

Creates a new copy of IpxImage.

Parameters

clone	Pointer to new image.
image	Pointer to source image.

Returns

Returns the error code:

- IPX_ERR_OK - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- IPX_ERR_NULL_POINTER - No srcImage or dstImage.

Note

This function allocates memory for new image and copies source image to it.

See also

IpxCloneImageExt
IpxCopyImage
IpxCreateImage
IpxImage

4.6.3.12 IpxCloneImageExt()

```
IPXIMAGE_API IpxError IpxCloneImageExt (
            IpxImage ** clone,
            const IpxImage * image )
```

Creates a new copy of IpxImage with restriction by ROI and COI.

Parameters

clone	Pointer to new image.
image	Pointer to source image.

Returns

Returns the error code:

- IPX_ERR_OK - Successfully creates a new copy of IpxImage with restriction by ROI and COI
- IPX_ERR_NULL_POINTER - No srcImage or dstImage.

Note

This function allocates memory for the new image and copies the image data that is restricted by ROI and COI.

See also

IpxCloneImage
IpxCopyImage
IpxCreateImage
IpxImage

4.6.3.13 IpxCopyImageHeader()

```
IPXIMAGE_API IpxError IpxCopyImageHeader (
            IpxImage * dstImage,
            const IpxImage * srcImage )
```

Copies source image header to destination image.

Parameters

dstImage	Pointer to destination image.
srcImage	Pointer to source image.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully copies source image header to destination image
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.

Note

This function copies source image header to destination image.

See also

IpxCloneMatrix
IpxCreateMatrixFromImage

4.6.3.14 IpxCopyImage()

```
IPXIMAGE_API IpxError IpxCopyImage (
            IpxImage * dstImage,
            const IpxImage * srcImage )
```

Copy source image to destination image.

Parameters

dstImage	Pointer to destination image.
srcImage	Pointer to source image.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully copies source image to destination image
- `IPX_ERR_NULL_POINTER` - No srcImage or dstImage.
- `IPX_ERR_INVALID_ARGUMENT` - invalid argument. For example, dstSize is less than srcImage size

Note

This function checks coincidence of size and pixel type in source and destination.

See also

IpxCopyImage
IpxCreateImage
IpxImage

4.6.3.15 IpxCopyImageChannelChar()

```
IPXIMAGE_API IpxError IpxCopyImageChannelChar (
             unsigned char * dst,
             int * dstSize,
             const IpxImage * srcImage,
             const int channel )
```

Copies a color channel of source image to a chars array.

Parameters

dst	Pointer to destination array.
dstSize	Pointer to the value of array size.
srcImage	Pointer to source image.
channel	Channel number of source image.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully copies a color channel of source image to a char array
- `IPX_ERR_NULL_POINTER` - Unable to copy the image Channels.
- `IPX_ERR_INVALID_ARGUMENT` - invalid argument. For example, dstSize is less than srcImage size

Note

This function copies a color channel of source image to a char array. If dst = NULL or ∗dstSize = 0, then the function returns the required size of destination array in dstSize value. Otherwise, the function returns the size of image row in pixels.

See also

IpxCopyImage
IpxCreateImage
IpxImage

4.6.3.16 IpxCopyImageChannelShort()

```
IPXIMAGE_API IpxError IpxCopyImageChannelShort (
             unsigned short * dst,
             int * dstSize,
             const IpxImage * srcImage,
             const int channel )
```

Copies a color channel of source image to a short array.

Parameters

dst	Pointer to destination array.
dstSize	Pointer to the value of array size.
srcImage	Pointer to source image.
channel	Channel number of source image.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully copies a color channel of source image to a short array
- `IPX_ERR_NULL_POINTER` - Unable to copy the image Channels.
- `IPX_ERR_INVALID_ARGUMENT` - invalid argument. For example, dstSize is less than srcImage size

Note

This function copies a color channel of source image to a shorts array. If dst = NULL or ∗dstSize = 0, then the function returns the required size of the destination array in dstSize value. Otherwise, the function returns the size of image row in pixels.

See also

IpxCopyImage
IpxCreateImage
IpxImage

4.6.3.17 IpxCopyImageChannelInt()

```
IPXIMAGE_API IpxError IpxCopyImageChannelInt (
             int * dst,
             int * dstSize,
             const IpxImage * srcImage,
             const int channel )
```

Copies a color channel of source image to a integer array.

Parameters

dst	Pointer to destination array.
dstSize	Pointer to the value of array size.
srcImage	Pointer to source image.
channel	Channel number of source image.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully copies a color channel of source image to an integer array
- `IPX_ERR_NULL_POINTER` - Unable to copy the image Channels.
- `IPX_ERR_INVALID_ARGUMENT` - invalid argument. For example, dstSize is less than srcImage size

Note

This function copies a color channel of source image to an integer array. If dst = NULL or ∗dstSize = 0, then the function returns the required size of the destination array in dstSize value. Otherwise, the function returns the size of the image row in pixels.

See also

IpxCopyImage
IpxCreateImage
IpxImage

4.6.3.18 IpxCopyImageChannelFloat()

```
IPXIMAGE_API IpxError IpxCopyImageChannelFloat (
             float * dst,
             int * dstSize,
             const IpxImage * srcImage,
             const int channel )
```

Copies a color channel of source image to a float array.

Parameters

dst	Pointer to destination array.
dstSize	Pointer to the value of array size.
srcImage	Pointer to source image.
channel	Channel number of source image.

Returns

Returns the error code:

- `IPX_ERR_OK` - Successfully copies a color channel of source image to a float array
- `IPX_ERR_NULL_POINTER` - Unable to copy the image Channels.
- `IPX_ERR_INVALID_ARGUMENT` - invalid argument. For example, dstSize is less than srcImage size

Note

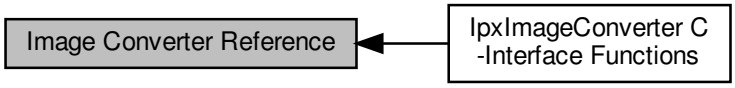
This function copies a color channel of source image to a floats array. If dst = NULL or ∗dstSize = 0, then the function returns the required size of destination array in dstSize value. Otherwise, the function returns the size of the image row in pixels.

See also

IpxCopyImage
IpxCreateImage
IpxImage

4.7 Image Converter Reference

Collaboration diagram for Image Converter Reference:



Modules

- IpxImageConverter C-Interface Functions

Classes

- class IpxImageConverter

  A Class for IpxImageConverter modules that contains methods to convert IpxImage images.

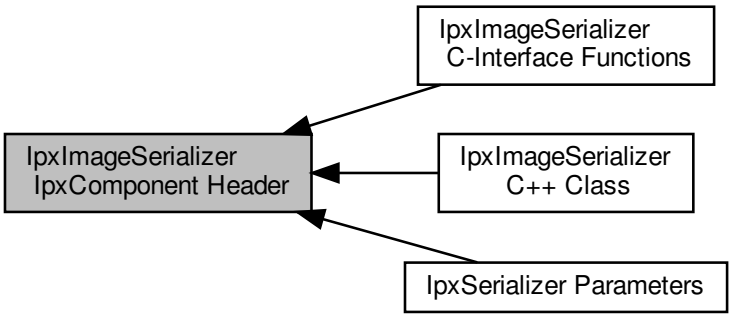
4.7.1 Detailed Description

The following items are exists in Image Converter

4.8 IpxImageSerializer IpxComponent Header

IpxImageSerializer vunctions and classes with IpxComponent features.

Collaboration diagram for IpxImageSerializer IpxComponent Header:



Modules

- IpxSerializer Parameters

  Defines for IpxSerializer Parameters.
- IpxImageSerializer C++ Class

  C++ Class for IpxImageSerializer.
- IpxImageSerializer C-Interface Functions

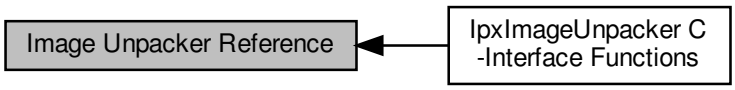
  C-interface functions for IpxImageSerializer.

4.8.1 Detailed Description

IpxImageSerializer vunctions and classes with IpxComponent features.

4.9 Image Unpacker Reference

Collaboration diagram for Image Unpacker Reference:



Modules

- IpxImageUnpacker C-Interface Functions

Classes

- class IpxImageUnpacker

  IpxComponent to unpack images.

4.9.1 Detailed Description

The following items exist in IpxImageUnpacker

4.10 IpxPixelType Header

Defines, macros for IpxPixelTypes.

Macros

- #define II_PIXEL_ALIGNMENT_MASK 0x0000FF00

  Mask to get pixel alignment.
- #define II_PIXEL_ALIGNMENT_PACK_MASK 0x0000F000

  Mask to get pixel packing.
- #define II_PIXEL_COLOR_MASK 0xFF000000

  Mask to get pixel chromaticity.
- #define II_PIXEL_SIZE_MASK 0x00FF0000

  Mask to get pixel chromaticity.
- #define II_PIXEL_SIZE_SHIFT 16

  Mask to get shift of pixel size.
- #define II_PIXEL_ID_MASK 0x000000FF

  Mask to get pixel ID value.
- #define II_GET_ROW_SIZE(pixType, width) IpxGetRowSize(pixType, width)

  Returns aligned row size for defined pixel type and number of pixels in row.
- #define II_GET_PIXEL_ALIGNMENT(pixType) (pixType & II_PIXEL_ALIGNMENT_MASK)

  Returns pixel alignment for defined pixel type.
- #define II_GET_PIXEL_CHROMATICITY(pixType) (pixType & II_PIXEL_COLOR_MASK)

  Returns pixel chromaticity for defined pixel type.
- #define II_IS_COLOR_PIXEL(pixType) ((pixType & II_PIXEL_COLOR_MASK) == II_PIX_COLOR)

  Returns 'true' if pixel is colored.
- #define II_IS_CUSTOM_PIXEL(pixType) ((pixType & II_PIXEL_COLOR_MASK) == II_PIX_CUSTOM)

  Returns 'true' if pixel is custom.
- #define II_GET_PIXEL_BITS_SIZE(pixType) ((pixType & II_PIXEL_SIZE_MASK)>>II_PIXEL_SIZE_SHIFT)

  Returns size of pixel in bits for defined pixel type.
- #define II_GET_PIXEL_ID(pixType) (pixType & II_PIXEL_ID_MASK)

  Returns identificator of pixel type for defined pixel type.
- #define II_GET_PIXEL_TYPE_INDEX(pixType) ((pixType & II_PIXEL_ID_MASK) - 1)

  Returns index of pixel type for defined pixel type.
- #define II_GET_IMAGE_SIZE(pixType, width, height) (height * II_GET_ROW_SIZE(pixType, width))

  Returns aligned image size for defined pixel type, width and height.
- #define II_IS_PACKED_PIXEL(pixType) (II_PIXEL_ALIGNMENT_PACK_MASK & pixType)

  Returns 'true' if pixel is packed.
- #define II_IS_PACKED_PIXEL_PFNC(pixType) ((II_PIXEL_ALIGNMENT_PACK_MASK & pixType) == II_ALIGN_PACKED_PFNC)

  Returns 'true' if pixel is packed, accorsing PFNC scheme.
- #define II_IS_PACKED_PIXEL_GEV(pixType) ((II_PIXEL_ALIGNMENT_PACK_MASK & pixType) == II_ALIGN_PACKED_GEV)

  Returns 'true' if pixel is packed, accorsing GEV scheme.
- #define II_IS_BAYER_CFA_PIXEL(__pixType__) (II_GET_PIXEL_CHROMATICITY(__pixType__) == II_PIX_BAYER_CFA)

Returns 'true' if pixel type is Bayer CFA pattern.

- #define II_IS_SPARSE_CFA_PIXEL(__pixType__) (II_GET_PIXEL_CHROMATICITY(__pixType__) == II_PIX_SPARSE_CFA)

  Returns 'true' if pixel type is Sparse CFA pattern.
- #define II_IS_MONO_PIXEL(__pixType__) (II_GET_PIXEL_CHROMATICITY(__pixType__) == II_PIX_MONO)

  Returns 'true' if pixel type is Monochrome.
- #define II_IS_COLOR_RGB_PIXEL(__pixType__) (II_GET_PIXEL_CHROMATICITY(__pixType__) == II_PIX_COLOR)

  Returns 'true' if pixel type is Color RGB or BGR.

Enumerations

- enum II_PIXEL_ALIGNMENT : uint32_t {
  II_ALIGN_8 = 0x00000100, II_ALIGN_10 = 0x00000200, II_ALIGN_12 = 0x00000300, II_ALIGN_14 = 0x00000400,
  II_ALIGN_16 = 0x00000500, II_ALIGN_10_PACKED_GEV = 0x00001200, II_ALIGN_12_PACKED_GEV = 0x00001300, II_ALIGN_10_PACKED_PFNC = 0x00002200,
  II_ALIGN_12_PACKED_PFNC = 0x00002300, II_ALIGN_8_PACKED_FLEX = 0x00003100, II_ALIGN_10_PACKED_FLEX = 0x00003200, II_ALIGN_12_PACKED_FLEX = 0x00003300 }

  Define pixel alignment.
- enum II_PIXEL_CHROMATICITY : uint32_t {
  II_PIX_MONO = 0x01000000, II_PIX_COLOR = 0x02000000, II_PIX_BAYER_CFA = 0x03000000, II_PIX_SPARSE_CFA = 0x04000000,
  II_PIX_YUV = 0x05000000, II_PIX_CUSTOM = 0x80000000 }

  Define pixel chromaticity.
- enum II_PIXEL_BITS : uint32_t {
  II_PIX_OCCUPY_1_BIT = 0x00010000, II_PIX_OCCUPY_2_BIT = 0x00020000, II_PIX_OCCUPY_4_BIT = 0x00040000, II_PIX_OCCUPY_8_BIT = 0x00080000,
  II_PIX_OCCUPY_10_BIT = 0x000A0000, II_PIX_OCCUPY_12_BIT = 0x000C0000, II_PIX_OCCUPY_16_BIT = 0x00100000, II_PIX_OCCUPY_20_BIT = 0x00140000,
  II_PIX_OCCUPY_24_BIT = 0x00180000, II_PIX_OCCUPY_32_BIT = 0x00200000, II_PIX_OCCUPY_36_BIT = 0x00240000, II_PIX_OCCUPY_48_BIT = 0x00300000 }

  Define effective number of bits occupied by the pixel (including padding).
- enum II_PIXEL_TYPE_DEFINES : uint32_t {
  II_PIX_MONO8 = (II_PIX_MONO | II_PIX_OCCUPY_8_BIT | II_ALIGN_8 | (II_MONO_ID_MIN+0x00)) , II_PIX_BAYGR8 = (II_PIX_BAYER_CFA | II_PIX_OCCUPY_8_BIT | II_ALIGN_8 | (II_BAYER_CFA_ID_MIN+0x00)) ,
  II_PIX_TS_BGGR_WBBW0_8 = (II_PIX_SPARSE_CFA | II_PIX_OCCUPY_8_BIT | II_ALIGN_8 | (II_SPARCE_CFA_ID_MIN+0x00)) , II_PIX_RGB8 = (II_PIX_COLOR | II_PIX_OCCUPY_24_BIT | II_ALIGN_8 | (II_RGB_ID_MIN+0x00)) ,
  II_PIX_YUV422_8_UYVY = (II_PIX_YUV | II_PIX_OCCUPY_16_BIT | II_ALIGN_8 | (II_YUV_ID_MIN+0x00)) ,
  II_PIX_NONE_TYPE = 0 }

  Definition of Pixel Types for Images which are processed in IpxImage.

Functions

- IPX_INLINE uint32_t IpxGetRowSize (uint32_t pixType, uint32_t width)

  Returns row size for defined pixel type and number of pixels in row.
- IPX_INLINE uint32_t IpxGetRowSizeUnaligned (uint32_t pixType, uint32_t width)

  Returns the size of unalligned row for defined pixel type and number of pixels.

- IPX_INLINE int32_t IpxGetPixelTypesNumber ()

  Returns the number of Pixel Types (Color Models) that are supported by this header file.
- IPX_INLINE bool IpxIsPixelType (uint32_t pixelType)

  Defines whether the number is the pixel type.
- IPX_INLINE bool IpxIsGroup (char *groupName, uint32_t pixelType)

  Defines whether the pixel type is a member of a group.
- IPX_INLINE const IpxColorModelDescription * IpxGetColorModelDescription (uint32_t pixelType)

  Defines color model descriptor by Pixel Type.
- IPX_INLINE const IpxColorModelDescription * IpxGetColorModelDescr (uint32_t index)

  Defines color model descriptor by an index.
- IPX_INLINE uint32_t IpxGetPixelType (char *colorModelName)

  Defines pixel type by name of color model.
- IPX_INLINE const char * IpxGetColorModelName (uint32_t pixelType)

  Defines name of color model by pixel type.
- IPX_INLINE const char * IpxGetChannelSequence (uint32_t pixelType)

  Defines sequence of channels.
- IPX_INLINE int32_t IpxGetChannelsNumber (uint32_t pixelType)

  Defines number of channels.
- IPX_INLINE int32_t IpxGetChannelsDepth (uint32_t pixelType)

  Defines depth of color channel.
- IPX_INLINE int32_t IpxGetStartPosition (uint32_t pixelType)

  Defines start position in a CFA.
- IPX_INLINE int32_t IpxGetChannelIndex (uint32_t pixelType, int16_t chName)

  Defines index of color channel.
- IPX_INLINE IpxError IpxCheckChannelNames (uint32_t pixelType, int16_t *chNames, int32_t channels)

  Checks channel names.
- IPX_INLINE IpxError IpxConvertChannelStr (char *nameStr, const char *sep, int16_t *chNames, int32_t *channels)

  Converts string to array of channel names.
- IPX_INLINE int16_t IpxGetChannelName (uint32_t pixelType, int32_t chnlIndx)

  Gets channel name.

4.10.1 Detailed Description

Defines, macros for IpxPixelTypes.

IpxPixelType Headers

4.10.2 Enumeration Type Documentation

4.10.2.1 II_PIXEL_ALIGNMENT

```
enum II_PIXEL_ALIGNMENT : uint32_t
```

Define pixel alignment.

Note

Pixel alignment defines order of bits placement.

See also

II_PIXEL_TYPE_DEFINES

Enumerator

II_ALIGN_8	8-bit unsigned. Value range: 0 to 255
II_ALIGN_10	10-bit unsigned. Value range: 0 to 1023
II_ALIGN_12	12-bit unsigned. Value range: 0 to 4095
II_ALIGN_14	14-bit unsigned. Value range: 0 to 16383
II_ALIGN_16	16-bit unsigned. Value range: 0 to 65535
II_ALIGN_10_PACKED_GEV	10-bit unsigned. Value range: 0 to 1023 - GigE Vision Mono10Packed, BayerXX10Packed alignment
II_ALIGN_12_PACKED_GEV	12-bit unsigned. Value range: 0 to 4095 - GigE Vision Mono12Packed, BayerXX12Packed alignment
II_ALIGN_10_PACKED_PFNC	10-bit unsigned. Value range: 0 to 1023 - PFNC Mono10p, BayerXX10p alignment, used in U3V
II_ALIGN_12_PACKED_PFNC	12-bit unsigned. Value range: 0 to 4095 - PFNC Mono12p, BayerXX12p alignment, used in U3V
II_ALIGN_8_PACKED_FLEX	8-bit unsigned. Value range: 0 to 255 - Alignment scheme, used in Framelink Express grabber
II_ALIGN_10_PACKED_FLEX	10-bit unsigned. Value range: 0 to 1023 - Alignment scheme, used in Framelink Express grabber
II_ALIGN_12_PACKED_FLEX	12-bit unsigned. Value range: 0 to 4095 - Alignment scheme, used in Framelink Express grabber

4.10.2.2 II_PIXEL_CHROMATICITY

```
enum II_PIXEL_CHROMATICITY : uint32_t
```

Define pixel chromaticity.

Note

Pixel chromaticity defines number of color channels in an image.

See also

II_PIXEL_TYPE_DEFINES

Enumerator

II_PIX_MONO	Monochrome pixel.
II_PIX_COLOR	Colored RGB pixel.
II_PIX_BAYER_CFA	Bayer CFA pixel.
II_PIX_SPARSE_CFA	Sparse TRUESENSE CFA pixel.
II_PIX_YUV	YUV, YCbCr pixel.
II_PIX_CUSTOM	Custom defined pixel type.

4.10.2.3 II_PIXEL_BITS

```
enum II_PIXEL_BITS : uint32_t
```

Define effective number of bits occupied by the pixel (including padding).

Note

This value can be used to quickly compute the amount of memory required to store an image using pixel type.

See also

II_PIXEL_TYPE_DEFINES

Enumerator

II_PIX_OCCUPY_1_BIT	Pixel size: 1 bits
II_PIX_OCCUPY_2_BIT	Pixel size: 2 bits
II_PIX_OCCUPY_4_BIT	Pixel size: 4 bits
II_PIX_OCCUPY_8_BIT	Pixel size: 8 bits
II_PIX_OCCUPY_10_BIT	Pixel size: 10 bits
II_PIX_OCCUPY_12_BIT	Pixel size: 12 bits
II_PIX_OCCUPY_16_BIT	Pixel size: 16 bits
II_PIX_OCCUPY_20_BIT	Pixel size: 20 bits

Enumerator

II_PIX_OCCUPY_24_BIT	Pixel size: 24 bits
II_PIX_OCCUPY_32_BIT	Pixel size: 32 bits
II_PIX_OCCUPY_36_BIT	Pixel size: 36 bits
II_PIX_OCCUPY_48_BIT	Pixel size: 48 bits

4.10.2.4 II_PIXEL_TYPE_DEFINES

```
enum II_PIXEL_TYPE_DEFINES : uint32_t
```

Definition of Pixel Types for Images which are processed in IpxImage.

Note

Each pixel type is represented by a 32-bit value. The upper 8-bit indicates the pixel chromaticity. The second upper 8-bit indicates the number of bit accupied by a pixel (including any padding). This can be used to quickly compute the amount of memory required to store an image using pixel type. Next 8-bit indicates pixel alignment that defines order of bits placement. Lower 8-bit indicates the pixel type identificator (pixel ID). Thus, pixel type contains main information about pixel structure. But pixel type don't define such parameters as color depth and channel order.

See also

II_PIXEL_CHROMATICITY
II_PIXEL_BITS
II_PIXEL_ALIGNMENT

Enumerator

II_PIX_MONO8	That and next types define grayscale pixels
II_PIX_BAYGR8	That and next types define Bayer pixels
II_PIX_TS_BGGR_WBBW0_8	That and next types define Sparse CFA pixels
II_PIX_RGB8	That and next types define RGB-BGR pixels
II_PIX_YUV422_8_UYVY	That and next types define YUV and TCbCr packed pixels
II_PIX_NONE_TYPE	The label for undefined pixel type

4.10.3 Function Documentation

4.10.3.1 IpxGetRowSize()

```
IPX_INLINE uint32_t IpxGetRowSize (
            uint32_t pixType,
            uint32_t width )
```

Returns row size for defined pixel type and number of pixels in row.

Parameters

pixType	Pixel type.
width	Number of pixels in row.

Returns

The return value is row size.

Note

Row size is aligned for effective memory using.

4.10.3.2 IpxGetRowSizeUnaligned()

```
IPX_INLINE uint32_t IpxGetRowSizeUnaligned (
            uint32_t pixType,
            uint32_t width )
```

Returns the size of unalligned row for defined pixel type and number of pixels.

Parameters

pixType	Pixel type.
width	Number of pixels in row.

Returns

The return value is row size.

Note

Row size is aligned for effective memory using.

4.10.3.3 IpxGetPixelTypesNumber()

```
IPX_INLINE int32_t IpxGetPixelTypesNumber ( )
```

Returns the number of Pixel Types (Color Models) that are supported by this header file.

Returns

The return value is the number of Pixel Types.

4.10.3.4 IpxIsPixelType()

```
IPX_INLINE bool IpxIsPixelType (
            uint32_t pixelType )
```

Defines whether the number is the pixel type.

Parameters

pixelType	Pixel type.

Returns

The return value is 'true' if pixType is pixel type.

4.10.3.5 IpxIsGroup()

```
IPX_INLINE bool IpxIsGroup (
            char * groupName,
            uint32_t pixelType )
```

Defines whether the pixel type is a member of a group.

Parameters

groupName	Group name or some substring in Color Model Name.
pixelType	Pixel type.

Returns

The return value is 'true' if pixType is a member of group.

4.10.3.6 IpxGetColorModelDescription()

```
IPX_INLINE const IpxColorModelDescription* IpxGetColorModelDescription (
            uint32_t pixelType )
```

Defines color model descriptor by Pixel Type.

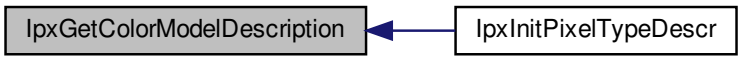
Parameters

pixelType	Pixel type.

Returns

The return value is pointer to color model descriptor.

Here is the caller graph for this function:



4.10.3.7 IpxGetColorModelDescr()

```
IPX_INLINE const IpxColorModelDescription* IpxGetColorModelDescr (
            uint32_t index )
```

Defines color model descriptor by an index.

Parameters

index	descriptor index.

Returns

The return value is pointer to color model descriptor.

4.10.3.8 IpxGetPixelType()

```
IPX_INLINE uint32_t IpxGetPixelType (
             char * colorModelName )
```

Defines pixel type by name of color model.

Parameters

colorModelName	Name of color model.

Returns

The return value is pixel type.

4.10.3.9 IpxGetColorModelName()

```
IPX_INLINE const char* IpxGetColorModelName (
             uint32_t pixelType )
```

Defines name of color model by pixel type.

Parameters

pixelType	Pixel type.

Returns

The return value is name of color model.

4.10.3.10 IpxGetChannelSequence()

```
IPX_INLINE const char* IpxGetChannelSequence (
            uint32_t pixelType )
```

Defines sequence of channels.

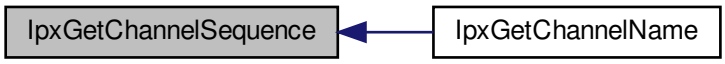
Parameters

pixelType	Pixel type.

Returns

The return value is sequence of channels.

Here is the caller graph for this function:



4.10.3.11 IpxGetChannelsNumber()

```
IPX_INLINE int32_t IpxGetChannelsNumber (
            uint32_t pixelType )
```

Defines number of channels.

Parameters

pixelType	Pixel type.

Returns

The return value is number of channels.

4.10.3.12 IpxGetChannelsDepth()

```
IPX_INLINE int32_t IpxGetChannelsDepth (
            uint32_t pixelType )
```

Defines depth of color channel.

Parameters

pixelType	Pixel type.

Returns

The return value is depth of color channel.

4.10.3.13 IpxGetStartPosition()

```
IPX_INLINE int32_t IpxGetStartPosition (
            uint32_t pixelType )
```

Defines start position in a CFA.

Parameters

pixelType	Pixel type.

Returns

The return value is start position in a CFA.

4.10.3.14 IpxGetChannelIndex()

```
IPX_INLINE int32_t IpxGetChannelIndex (
            uint32_t pixelType,
            int16_t chName )
```

Defines index of color channel.

Parameters

pixelType	Pixel type.
chName	Channel name.

Returns

The return value is index of color channel.

4.10.3.15 IpxCheckChannelNames()

```
IPX_INLINE IpxError IpxCheckChannelNames (
            uint32_t pixelType,
            int16_t * chNames,
            int32_t channels )
```

Checks channel names.

Parameters

pixelType	Pixel type.
chNames	Array of channel names.
channels	Number of checked names.

Returns

If the function succeeds, the return value is 0. If the function fails, the return value is -1.

4.10.3.16 IpxConvertChannelStr()

```
IPX_INLINE IpxError IpxConvertChannelStr (
            char * nameStr,
            const char * sep,
            int16_t * chNames,
            int32_t * channels )
```

Converts string to array of channel names.

Parameters

nameStr	String of channel names.
sep	Separator of channel names in the string.
chNames	Array of channel names.
channels	Number of channel names.

Returns

If the function succeeds, the return value is 0. If the function fails, the return value is -1.

Here is the caller graph for this function:

4.10.3.17 IpxGetChannelName()

```
IPX_INLINE int16_t IpxGetChannelName (
            uint32_t pixelType,
            int32_t chnlIndx )
```

Gets channel name.

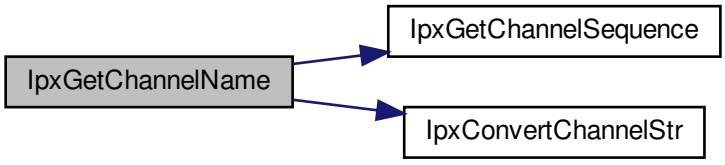
Parameters

pixelType	Pixel type.
chnlIndx	Channel index.

Returns

The return value is channel name.

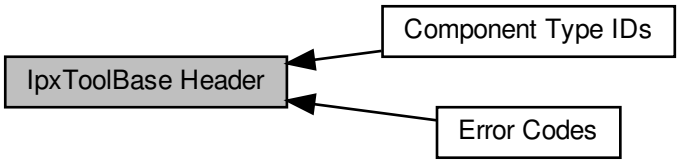
Here is the call graph for this function:



4.11 IpxToolBase Header

Macros, defines, structures for IpxToolBase and IpxComponent Class.

Collaboration diagram for IpxToolBase Header:



Modules

- Error Codes

  Common Error Codes.
- Component Type IDs

  Component Type IDs.

Classes

- struct IpxRect

  The IpxRect structure defines a rectangle by the coordinates of its upper-left corner and width, height.
- struct IpxSize

  The IpxSize structure specifies a rectangle.
- struct IpxPoint

  The IpxPoint structure specifies a point.
- class IpxComponent

  A Class for IpxComponent modules that contains methods for setting/getting/executing Component features.

Macros

- #define IPX_ERR(__component__, __code__) ((__code__)==0) ? (IPX_ERR_OK) : ((0x80000000 | ((__component__)<<16) | (__code__)))

  Imperx Error Macro.
- #define IPX_WRN(__component__, __code__) (IpxError)((__component__<<16) | __code__)

  Imperx Warning Macro.
- #define IPX_ERR_SUCCEEDED(__code__) ((__code__ & 0xFFFF) ==0)

  Imperx Error Code Succeeded Macro.
- #define IPX_ERR_FAILED(__code__) (__code__>0x80000000)

  Imperx Error Code Failed Macro.
- #define IPX_ERR_WARNING(__code__) ((__code__<0x80000000) && (__code__!=0))

  Imperx Error Code Warning Macro.

Typedefs

- typedef void * IpxHandle

  IpxHandle defines the handle of IpxTools component's instance.
- typedef uint32_t IpxError

  Error definitions.

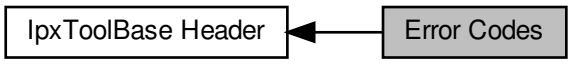
4.11.1 Detailed Description

Macros, defines, structures for IpxToolBase and IpxComponent Class.

4.12 Error Codes

Common Error Codes.

Collaboration diagram for Error Codes:



Macros

- #define IPX_ERR_OK 0

  This error code occurs when the function was successful.
- #define IPX_ERR_UNKNOWN 1

  This error code occurs when the function is not successful.
- #define IPX_ERR_FILE_NOTFOUND 2

  This error code occurs when the file is not found.
- #define IPX_ERR_NOT_SUPPORTED 3

  This error code occurs when the parameter uses or functionality is not supported.
- #define IPX_ERR_ACCESS_DENIED 4

  This error code occurs when access is denied.
- #define IPX_ERR_OUT_OF_RANGE 5

  This error code occurs when the parameter valid set is out of range.
- #define IPX_ERR_BUFFER_TOO_SMALL 6

  This error code occurs when the buffer is too small.
- #define IPX_ERR_INVALID_ARGUMENT 7

  This error code occurs when the argument passed in is an invalid argument.
- #define IPX_ERR_NULL_POINTER 8

  This error code occurs when the parameter, source image, or destination image are unable to be created causing a null pointer.
- #define IPX_ERR_NOT_ENOUGH_MEMORY 9

  This error code occurs when not enough memory was declared for the destination image.
- #define IPX_ERR_NOT_IMPLEMENTED 10

  This error code occurs when the function, parameter, or feature has not been implemented.

4.12.1 Detailed Description

Common Error Codes.

This is the Common error codes

4.13 Component Type IDs

Component Type IDs.

Collaboration diagram for Component Type IDs:

Macros

- #define IPX_CMP_IMG_SERIALIZER 0x01

  IpxSerializer Component Type.
- #define IPX_CMP_BAYER_DEMOSAICING 0x05

  IpxDemosaic Component Type.
- #define IPX_CMP_TS_DEMOSAICING 0x06

  IpxDemosaic Component Type.
- #define IPX_CMP_DISPLAY 0x07

  IpxDisplay Component Type.
- #define IPX_CMP_IMG_CONVERTER 0x08

  IpxImageConverter Component Type.
- #define IPX_CMP_IMG_UNPACKER 0x09

  IpxImageUnacker Component Type.

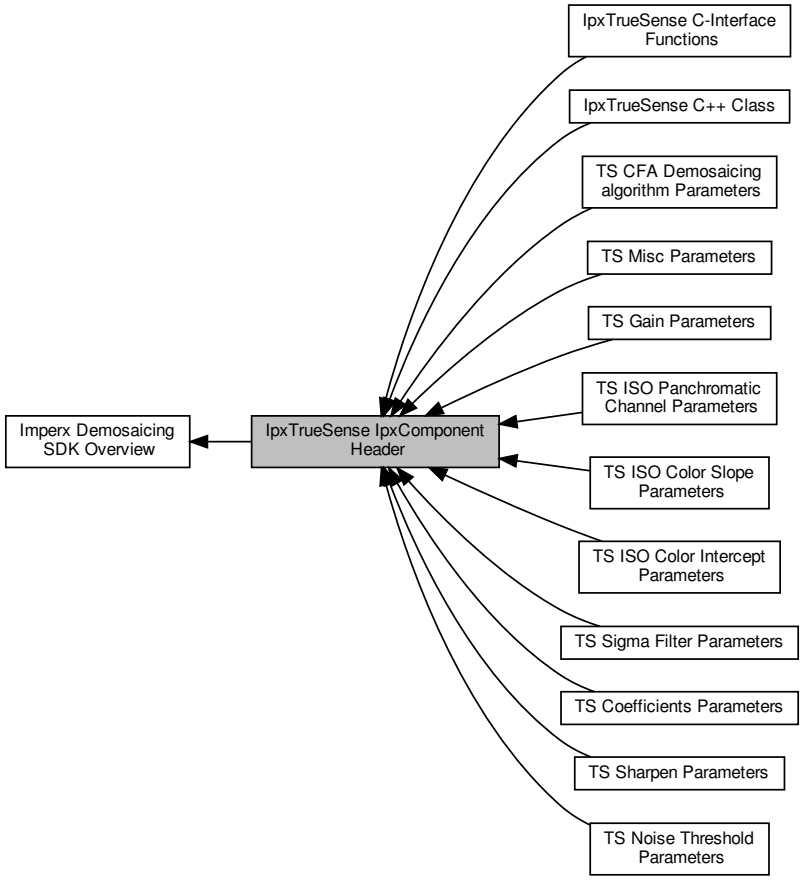
4.13.1 Detailed Description

Component Type IDs.

4.14 IpxTrueSense IpxComponent Header

TrueSense functions and classes with IpxComponent features.

Collaboration diagram for IpxTrueSense IpxComponent Header:



Modules

- TS CFA Demosaicing algorithm Parameters

  Defines for TS CFA Demosaicing algorithms.
- TS Misc Parameters

  Defines for TS Misc parameters.
- TS Gain Parameters

  Defines for TS gain parameters.
- TS ISO Panchromatic Channel Parameters

  Defines for TS ISO Panchromatic channel parameters.
- TS ISO Color Slope Parameters

Defines for TS ISO Color Slope parameters.

- TS ISO Color Intercept Parameters

  Defines for TS ISO Color Intercept parameters.
- TS Sigma Filter Parameters

  Defines for TS Sigma Filter parameters.
- TS Coefficients Parameters

  Defines for TS Coefficients parameters.
- TS Sharpen Parameters

  Defines for TS Sharpen parameters.
- TS Noise Threshold Parameters

  Defines for TS Noise Threshold parameters.
- IpxTrueSense C++ Class

  C++ Class for IpxTrueSense.
- IpxTrueSense C-Interface Functions

  C-interface functions for IpxTrueSense.

4.14.1 Detailed Description

TrueSense functions and classes with IpxComponent features.

This module is responsible for conversion CFA pattern (TRUESENSE) to color image.

4.15 IpxUserData Header

Defines for user data types for Images.

Classes

- struct IpxUserData

  Data structure for description of User Data linked with Imperx Image.

Enumerations

- enum IPX_USER_DATA : unsigned long { IPX_NOT_DATA = 0, IPX_HASHTABLE_DATA, IPX_XML_DATA, IPX_CUSTOM_DATA }

  Definition of user data types for Images which are processed.

4.15.1 Detailed Description

Defines for user data types for Images.

4.15.2 Enumeration Type Documentation

4.15.2.1 IPX_USER_DATA

```
enum IPX_USER_DATA : unsigned long
```

Definition of user data types for Images which are processed.

Note

The User data are intended to store additional information about the image

See also

IpxUserData
IpxCreateUserData
IpxReleaseUserData

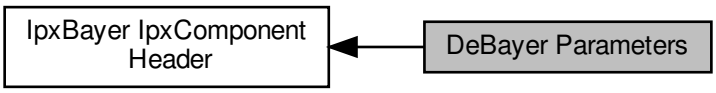
Enumerator

IPX_NOT_DATA	Type of user data is undefined.
IPX_HASHTABLE_DATA	User data are placed into hashtable.
IPX_XML_DATA	User data have XML format.
IPX_CUSTOM_DATA	Format of user data is defined by customer.

4.16 DeBayer Parameters

Defines for DeBayer Parameters.

Collaboration diagram for DeBayer Parameters:



Macros

- #define DEBAYER_ALGO_TYPE "BayerAlgType"
- #define DEBAYER_NOREALLOCT "NoRealloc"

4.16.1 Detailed Description

Defines for DeBayer Parameters.

Table 4.41 DeBayer Parameters

Macro	Parameter Name	Type and Range	Description
DEBAYER_ALGO_TYPE	"BayerAlgType"	[int: 0,4]	Bayer Algorithm Type
DEBAYER_NOREALLOCT	"NoRealloc"	[int: 0,1]	No Realloc enabled

4.16.2 Macro Definition Documentation

4.16.2.1 DEBAYER_ALGO_TYPE

```
#define DEBAYER_ALGO_TYPE "BayerAlgType"
```

Bayer Algorithm Type

Type/Range [int: 0,4]

Note

Used by SetParamInt and GetParamInt

4.16.2.2 DEBAYER_NOREALLOCT

```
#define DEBAYER_NOREALLOCT "NoRealloc"
```

No Realloc enabled

Type/Range [int: 0,1]

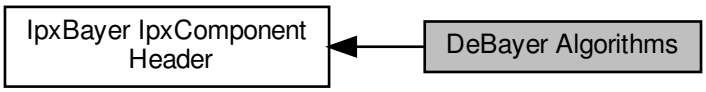
Note

Used by SetParamInt and GetParamInt

4.17 DeBayer Algorithms

Type of DeBayer Algorithms.

Collaboration diagram for DeBayer Algorithms:



Macros

- #define BAYER_SIMPLE 0
- #define BAYER_GRADIENT 1
- #define BAYER_EA 2
- #define BAYER_OPENGL_MHC 3
- #define BAYER_OPENGL_MMA 4

4.17.1 Detailed Description

Type of DeBayer Algorithms.

Defines DeBayer Algorithms

Note

These parameters are used in the SetIntParam function to program the DEBAYER_ALGO_TYPE parameter

For example,

```
pDeBayer->GetComponent()->SetParamInt(DEBAYER_ALGO_TYPE, BAYER_AHD);
```

4.17.2 Macro Definition Documentation

4.17.2.1 BAYER_SIMPLE

```
#define BAYER_SIMPLE 0
```

Simple algorithm. Average quality, high speed.

4.17.2.2 BAYER_GRADIENT

```
#define BAYER_GRADIENT 1
```

Gradient Based algorithm. High quality, medium speed.

4.17.2.3 BAYER_EA

```
#define BAYER_EA 2
```

Edge-Aware Demosaicing. Average quality, medium speed.

4.17.2.4 BAYER_OPENGL_MHC

```
#define BAYER_OPENGL_MHC 3
```

OpenGL MHC Algorithm.

4.17.2.5 BAYER_OPENGL_MMA

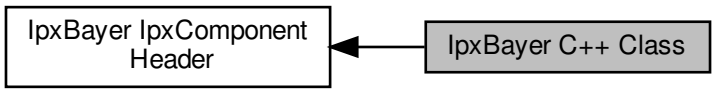
```
#define BAYER_OPENGL_MMA 4
```

OpenGL MMA Algorithm.

4.18 IpxBayer C++ Class

C++ Class for IpxBayer.

Collaboration diagram for IpxBayer C++ Class:



Classes

- class IpxBayer

  A Class for IpxBayer modules that contains methods to convert Bayer CFA (Color Filter Array) images.

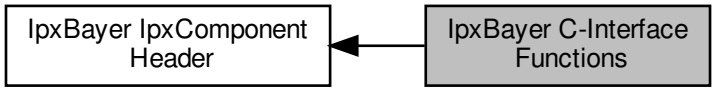
4.18.1 Detailed Description

C++ Class for IpxBayer.

4.19 IpxBayer C-Interface Functions

C-interface functions for IpxBayer.

Collaboration diagram for IpxBayer C-Interface Functions:



Functions

- BAYER_EXTERN_C BAYER_API IpxHandle BAYER_CALL IpxBayer_CreateComponent ()

  This C-interface function returns the IpxHandle for the created IpxBayer instance.
- BAYER_EXTERN_C BAYER_API void BAYER_CALL IpxBayer_DeleteComponent (IpxHandle hBayer)

  This C-interface function deletes the IpxHandle hBayer component and all associated resources obtained by the IpxBayer object.
- BAYER_EXTERN_C BAYER_API IpxHandle BAYER_CALL IpxBayer_GetComponent (IpxHandle hBayer)

  This C-interface function returns the IpxHandle for the created IpxBayer instance.
- BAYER_EXTERN_C BAYER_API IpxError BAYER_CALL IpxBayer_ConvertImage (IpxHandle hBayer, const IpxImage *pSrc, IpxImage *pDst)

  This C-interface function converts the input source IpxImage to the targeted output destination.
- BAYER_EXTERN_C BAYER_API IpxError BAYER_CALL IpxBayer_AllocData (IpxHandle hBayer, const IpxImage *pSrc, IpxImage *pDst)

  This C-interface function allocates the data.
- BAYER_EXTERN_C BAYER_API void BAYER_CALL IpxBayer_ReleaseData (IpxHandle hBayer)

  This C-interface function release the IpxHandle to the IpxBayer data.

4.19.1 Detailed Description

C-interface functions for IpxBayer.

4.19.2 Function Documentation

4.19.2.1 IpxBayer_CreateComponent()

```
BAYER_EXTERN_C BAYER_API IpxHandle BAYER_CALL IpxBayer_CreateComponent ( )
```

This C-interface function returns the IpxHandle for the created IpxBayer instance.

Returns

Returns the IpxHandle for the created IpxBayer object

4.19.2.2 IpxBayer_DeleteComponent()

```
BAYER_EXTERN_C BAYER_API void BAYER_CALL IpxBayer_DeleteComponent (
            IpxHandle hBayer )
```

This C-interface function deletes the IpxHandle hBayer component and all associated resources obtained by the IpxBayer object.

Parameters

in	*hBayer*	Pointer to the IpxHandle for the IpxBayer instance

Returns

void

4.19.2.3 IpxBayer_GetComponent()

```
BAYER_EXTERN_C BAYER_API IpxHandle BAYER_CALL IpxBayer_GetComponent (
            IpxHandle hBayer )
```

This C-interface function returns the IpxHandle for the created IpxBayer instance.

Parameters

in	*hBayer*	Pointer to the IpxHandle for the IpxBayer instance

Returns

Returns the IpxHandle for the IpxBayer object component

4.19.2.4 IpxBayer_ConvertImage()

```
BAYER_EXTERN_C BAYER_API IpxError BAYER_CALL IpxBayer_ConvertImage (
            IpxHandle hBayer,
            const IpxImage * pSrc,
            IpxImage * pDst )
```

This C-interface function converts the input source IpxImage to the targeted output destination.

Parameters

in	*hBayer*	Pointer to the IpxHandle for the IpxBayer Component
in	*pSrc*	Pointer to the source IpxImage
out	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- IPX_ERR_OK Successfully converts the source IpxImage to the targeted output destination IpxImage
- If IpxError error code < 0, then it returns a negative error code indicating problems converting the IpxImage

4.19.2.5 IpxBayer_AllocData()

```
BAYER_EXTERN_C BAYER_API IpxError BAYER_CALL IpxBayer_AllocData (
            IpxHandle hBayer,
            const IpxImage * pSrc,
            IpxImage * pDst )
```

This C-interface function allocates the data.

Parameters

in	*hBayer*	Pointer of the IpxHandle for the IpxBayer Component
in	*pSrc*	Pointer to the source IpxImage
in	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- IPX_ERR_OK Successfully allocates the IpxImage data.
- If IpxError error code < 0, then it returns a negative error code indicating problems allocating IpxImage data

4.19.2.6 IpxBayer_ReleaseData()

```
BAYER_EXTERN_C BAYER_API void BAYER_CALL IpxBayer_ReleaseData (
            IpxHandle hBayer )
```

This C-interface function release the IpxHandle to the IpxBayer data.

Parameters

in	*hBayer*	Pointer of the IpxHandle for the IpxBayer data

Returns

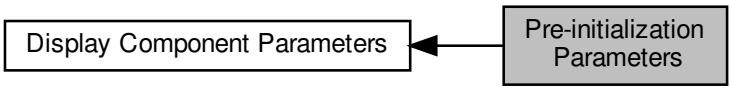
Returns the error code:

- IPX_ERR_OK Successfully releases the IpxBayer data.
- If IpxError error code $<$ 0, then it returns a negative error code indicating problems releasing the IpxBayer data

4.20 Pre-initialization Parameters

Defines for Pre-Initialization Parameters.

Collaboration diagram for Pre-initialization Parameters:



Macros

- #define IDP_BACKGROUND "display.bg.color"
- #define IDP_INIT_FIT "display.init.fit"
- #define IDP_INIT_AT_X "display.init.at.x"
- #define IDP_INIT_AT_Y "display.init.at.y"
- #define IDP_SMOOTHING "processing.smoothing"
- #define IDP_OGL_BAYER "ogl.processing.bayer.method"
- #define IDP_OGL_TRUESENSE "ogl.processing.truesense.method"
- #define IDP_GDI_BAYER "gdi.processing.bayer.method"
- #define IDP_GDI_TRUESENSE "gdi.processing.truesense.method"
- #define IDP_COMMAND_WINDOW "window.command"
- #define IDP_OVERLAY_FONT_DESC_0 "overlay.font.desc.0"
- #define IDP_OVERLAY_FONT_DESC_1 "overlay.font.desc.1"
- #define IDP_OVERLAY_FONT_DESC_2 "overlay.font.desc.2"
- #define IDP_OVERLAY_FONT_DESC_3 "overlay.font.desc.3"

4.20.1 Detailed Description

Defines for Pre-Initialization Parameters.

Table 4.47 PRE-INIT PARAMETERS

Macro	Parameter Name	Type	Description
IDP_BACKGROUND	"display.bg.color"	[int: 0, 1]	Background color
IDP_SMOOTHING	"processing.smoothing"	[int: 0,1]	Smoothing
IDP_OGL_BAYER	"ogl.processing.bayer.method"	[int: 0,1]	De-bayer method for OpenGL mode
IDP_OGL_TRUESENSE	"ogl.processing.truesense.↩ method"	[int: 0,1]	Truesense demosaicing method for OpenGL mode
IDP_GDI_BAYER	"gdi.processing.bayer.method"	[int: 0-2]	De-bayer method for GDI mode

Macro	Parameter Name	Type	Description
IDP_GDI_TRUESENSE	"gdi.processing.truesense.↩ method"	[int: 0,1]	Truesense demosaicing method for GDI mode
IDP_COMMAND_WINDOW	"window.command"	[int]	Command window handle
IDP_OVERLAY_FONT_DES↩ C_0	"overlay.font.desc.0"	[char∗]	Overlay font descriptor for font #0
IDP_OVERLAY_FONT_DES↩ C_1	"overlay.font.desc.1"	[char∗]	Overlay font descriptor for font #1
IDP_OVERLAY_FONT_DES↩ C_2	"overlay.font.desc.2"	[char∗]	Overlay font descriptor for font #2
IDP_OVERLAY_FONT_DES↩ C_3	"overlay.font.desc.3"	[char∗]	Overlay font descriptor for font #3

4.20.2 Macro Definition Documentation

4.20.2.1 IDP_BACKGROUND

```
#define IDP_BACKGROUND "display.bg.color"
```

Background color

Type/Range [int: 0, 1]

Note

Used by SetParamInt and GetParamInt [QT: yes]

4.20.2.2 IDP_INIT_FIT

```
#define IDP_INIT_FIT "display.init.fit"
```

View: default fit mode for new image format

Type/Range [int: 0-3]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.20.2.3 IDP_INIT_AT_X

```
#define IDP_INIT_AT_X "display.init.at.x"
```

View: default fit mode for new image format

Type/Range [int: 0-3]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.20.2.4 IDP_INIT_AT_Y

```
#define IDP_INIT_AT_Y "display.init.at.y"
```

View: default fit mode for new image format

Type/Range [int: 0-3]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.20.2.5 IDP_SMOOTHING

```
#define IDP_SMOOTHING "processing.smoothing"
```

Smoothing

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.20.2.6 IDP_OGL_BAYER

```
#define IDP_OGL_BAYER "ogl.processing.bayer.method"
```

De-bayer method for OpenGL mode

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.20.2.7 IDP_OGL_TRUESENSE

```
#define IDP_OGL_TRUESENSE "ogl.processing.truesense.method"
```

Truesense demosaicing method for OpenGL mode

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.20.2.8 IDP_GDI_BAYER

```
#define IDP_GDI_BAYER "gdi.processing.bayer.method"
```

De-bayer method for GDI mode

Type/Range [int: 0-2]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.20.2.9 IDP_GDI_TRUESENSE

```
#define IDP_GDI_TRUESENSE "gdi.processing.truesense.method"
```

Truesense demosaicing method for GDI mode

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.20.2.10 IDP_COMMAND_WINDOW

```
#define IDP_COMMAND_WINDOW "window.command"
```

Command window handle

Type/Range [int]

Note

Used by SetParamInt and GetParamInt [QT: yes]

4.20.2.11 IDP_OVERLAY_FONT_DESC_0

```
#define IDP_OVERLAY_FONT_DESC_0 "overlay.font.desc.0"
```

Overlay font descriptor for font #0

Type/Range [char∗]

Note

Used by SetParamString and GetParamString [QT: no]

4.20.2.12 IDP_OVERLAY_FONT_DESC_1

```
#define IDP_OVERLAY_FONT_DESC_1 "overlay.font.desc.1"
```

Overlay font descriptor for font #1

Type/Range [char∗]

Note

Used by SetParamString and GetParamString [QT: no]

4.20.2.13 IDP_OVERLAY_FONT_DESC_2

```
#define IDP_OVERLAY_FONT_DESC_2 "overlay.font.desc.2"
```

Overlay font descriptor for font #2

Type/Range [char∗]

Note

Used by SetParamString and GetParamString [QT: no]

4.20.2.14 IDP_OVERLAY_FONT_DESC_3

```
#define IDP_OVERLAY_FONT_DESC_3 "overlay.font.desc.3"
```

Overlay font descriptor for font #3

Type/Range [char∗]

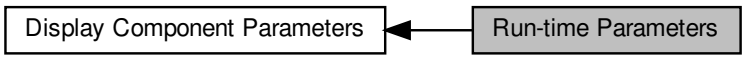
Note

Used by SetParamString and GetParamString [QT: no]

4.21 Run-time Parameters

Defines for Run-time Parameters (View Management)

Collaboration diagram for Run-time Parameters:



Macros

- #define IDP_SIGNATURE "system.signature"
- #define IDP_VIEW_FIT "display.fit"
- #define IDP_VIEW_X "display.x"
- #define IDP_VIEW_Y "display.y"
- #define IDP_VIEW_SCALE "display.view.scale"
- #define IDP_MANAGED_FPS "playback.managed.fps"
- #define IDP_MANAGED_STATE "playback.managed"
- #define IDP_VIEW_CLR "display.view.color"
- #define IDP_VIEW_CURSOR_X "display.view.cursor.x"
- #define IDP_VIEW_CURSOR_Y "display.view.cursor.y"
- #define IDP_PROC_PROCESSOR "processor"
- #define IDP_PROC_PROCESSOR_TYPE "processor.type"
- #define IDP_MENU_X "menu.x"
- #define IDP_MENU_Y "menu.y"
- #define IDP_MENU_CMD "menu.cmd"

4.21.1 Detailed Description

Defines for Run-time Parameters (View Management)

Table 4.48 RUN-TIME PARAMETERS

Macro	Parameter Name	Type	Description
IDP_VIEW_FIT	"display.fit"	[int: 0-3]	View: current fit mode
IDP_VIEW_X	"display.x"	[real: 0-1]	X position
IDP_VIEW_Y	"display.y"	[real: 0-1]	Y position
IDP_MANAGED_FPS	"playback.managed.fps"	[int]	"Managed" state FPS (default 20)
IDP_MANAGED_STATE	"playback.managed"	[int]	"Managed" state flag (default 0)

4.21.2 Macro Definition Documentation

4.21.2.1 IDP_SIGNATURE

```
#define IDP_SIGNATURE "system.signature"
```

Component identifier [QT: no]

4.21.2.2 IDP_VIEW_FIT

```
#define IDP_VIEW_FIT "display.fit"
```

View: current fit mode

Type/Range [int: 0-3]

Note

Used by SetParamInt and GetParamInt [QT: yes]

4.21.2.3 IDP_VIEW_X

```
#define IDP_VIEW_X "display.x"
```

X position

Type/Range [real: 0-1] [QT: no]

4.21.2.4 IDP_VIEW_Y

```
#define IDP_VIEW_Y "display.y"
```

Y position

Type/Range [real: 0-1] [QT: no]

4.21.2.5 IDP_VIEW_SCALE

```
#define IDP_VIEW_SCALE "display.view.scale"
```

View: current scale [QT: no]

4.21.2.6 IDP_MANAGED_FPS

```
#define IDP_MANAGED_FPS "playback.managed.fps"
```

"Managed" state FPS (default 20)

Type/Range [int] [QT: no]

4.21.2.7 IDP_MANAGED_STATE

```
#define IDP_MANAGED_STATE "playback.managed"
```

"Managed" state flag (default 0)

Type/Range [int] [QT: no]

4.21.2.8 IDP_VIEW_CLR

```
#define IDP_VIEW_CLR "display.view.color"
```

Current color

Type/Range [char∗] [QT: no]

4.21.2.9 IDP_VIEW_CURSOR_X

```
#define IDP_VIEW_CURSOR_X "display.view.cursor.x"
```

Current cursor X position in image co-ordinates

Type/Range [int: 0-width] [QT: no]

4.21.2.10 IDP_VIEW_CURSOR_Y

```
#define IDP_VIEW_CURSOR_Y "display.view.cursor.y"
```

Current cursor Y position in image co-ordinates

Type/Range [int: 0-width] [QT: no]

4.21.2.11 IDP_PROC_PROCESSOR

```
#define IDP_PROC_PROCESSOR "processor"
```

Image processor pointer [QT: no]

4.21.2.12 IDP_PROC_PROCESSOR_TYPE

```
#define IDP_PROC_PROCESSOR_TYPE "processor.type"
```

Image processor type [QT: no]

4.21.2.13 IDP_MENU_X

```
#define IDP_MENU_X "menu.x"
```

X position for context menu

Type/Range [int] [QT: no]

4.21.2.14 IDP_MENU_Y

```
#define IDP_MENU_Y "menu.y"
```

Y position for context menu

Type/Range [int] [QT: no]

4.21.2.15 IDP_MENU_CMD

```
#define IDP_MENU_CMD "menu.cmd"
```

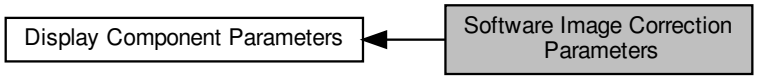
Context menu command

Type/Range [int] [QT: no]

4.22 Software Image Correction Parameters

Defines for Software Image Correction Parameters.

Collaboration diagram for Software Image Correction Parameters:



Macros

- #define IDP_CORR_MODE "correction.mode"
- #define IDP_CORR_GAIN_R "correction.gain.r"
- #define IDP_CORR_GAIN_G "correction.gain.g"
- #define IDP_CORR_GAIN_B "correction.gain.b"
- #define IDP_CORR_OFFS_R "correction.offs.r"
- #define IDP_CORR_OFFS_G "correction.offs.g"
- #define IDP_CORR_OFFS_B "correction.offs.b"
- #define IDP_CORR_GAMMA "correction.gamma"

4.22.1 Detailed Description

Defines for Software Image Correction Parameters.

Table 4.49 SW IMAGE CORRECTION PARAMETERS

Macro	Parameter Name	Type	Description
IDP_CORR_MODE	"correction.mode"	[int: 0-2]	Software Correction: current mode
IDP_CORR_GAIN_R	"correction.gain.r"	[real: 0+]	Software Correction: Gain for red channel
IDP_CORR_GAIN_G	"correction.gain.g"	[real: 0+]	Software Correction: Gain for green channel
IDP_CORR_GAIN_B	"correction.gain.b"	[real: 0+]	Software Correction: Gain for blue channel
IDP_CORR_OFFS_R	"correction.offs.r"	[int]	Software Correction: Offset for red channel
IDP_CORR_OFFS_G	"correction.offs.g"	[int]	Software Correction: Offset for green channel
IDP_CORR_OFFS_B	"correction.offs.b"	[int]	Software Correction: Offset for blue channel
IDP_CORR_GAMMA	"correction.gamma"	[real: 0+]	Software Correction: Gamma

4.22.2 Macro Definition Documentation

4.22.2.1 IDP_CORR_MODE

```
#define IDP_CORR_MODE "correction.mode"
```

Software Correction: current mode

Type/Range [int: 0-2]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.22.2.2 IDP_CORR_GAIN_R

```
#define IDP_CORR_GAIN_R "correction.gain.r"
```

Software Correction: Gain for red channel

Type/Range [real: 0+]

Note

Used by SetParamFloat and GetParamFloat [QT: no]

4.22.2.3 IDP_CORR_GAIN_G

```
#define IDP_CORR_GAIN_G "correction.gain.g"
```

Software Correction: Gain for green channel

Type/Range [real: 0+]

Note

Used by SetParamFloat and GetParamFloat [QT: no]

4.22.2.4 IDP_CORR_GAIN_B

```
#define IDP_CORR_GAIN_B "correction.gain.b"
```

Software Correction: Gain for blue channel

Type/Range [real: 0+]

Note

Used by SetParamFloat and GetParamFloat [QT: no]

4.22.2.5 IDP_CORR_OFFS_R

```
#define IDP_CORR_OFFS_R "correction.offs.r"
```

Software Correction: Offset for red channel

Type/Range [int]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.22.2.6 IDP_CORR_OFFS_G

```
#define IDP_CORR_OFFS_G "correction.offs.g"
```

Software Correction: Offset for green channel

Type/Range [int]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.22.2.7 IDP_CORR_OFFS_B

```
#define IDP_CORR_OFFS_B "correction.offs.b"
```

Software Correction: Offset for blue channel

Type/Range [int]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.22.2.8 IDP_CORR_GAMMA

```
#define IDP_CORR_GAMMA "correction.gamma"
```

Software Correction: Gamma

Type/Range [real: 0+]

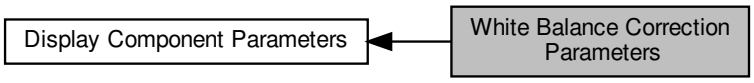
Note

Used by SetParamFloat and GetParamFloat [QT: no]

4.23 White Balance Correction Parameters

Defines for White Balance Correction Parameters.

Collaboration diagram for White Balance Correction Parameters:



Macros

- #define IDP_CALC_COEF_R "correction.calc.r"
- #define IDP_CALC_COEF_G "correction.calc.g"
- #define IDP_CALC_COEF_B "correction.calc.b"

4.23.1 Detailed Description

Defines for White Balance Correction Parameters.

Table 4.50 WHITE BALANCE CORRECTION PARAMETERS

Macro	Parameter Name	Type	Description
IDP_CALC_COEF_R	"correction.calc.r"	[real: 0+]	White balance: coef for red channel
IDP_CALC_COEF_G	"correction.calc.g"	[real: 0+]	White balance: coef for green channel
IDP_CALC_COEF_B	"correction.calc.b"	[real: 0+]	White balance: coef for blue channel

4.23.2 Macro Definition Documentation

4.23.2.1 IDP_CALC_COEF_R

```
#define IDP_CALC_COEF_R "correction.calc.r"
```

White balance: coef for red channel

Type/Range [real: 0+]

Note

Used by SetParamFloat and GetParamFloat [QT: no]

4.23.2.2 IDP_CALC_COEF_G

```
#define IDP_CALC_COEF_G "correction.calc.g"
```

White balance: coef for green channel

Type/Range [real: 0+]

Note

Used by SetParamFloat and GetParamFloat [QT: no]

4.23.2.3 IDP_CALC_COEF_B

```
#define IDP_CALC_COEF_B "correction.calc.b"
```

White balance: coef for blue channel

Type/Range [real: 0+]

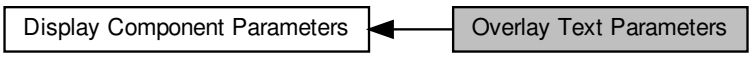
Note

Used by SetParamFloat and GetParamFloat [QT: no]

4.24 Overlay Text Parameters

Defines for Overlay Text Parameters.

Collaboration diagram for Overlay Text Parameters:



Macros

- #define IDP_OVERLAY_INDEX "overlay.index"
- #define IDP_OVERLAY_POS "overlay.pos"
- #define IDP_OVERLAY_FONT "overlay.font"
- #define IDP_OVERLAY_COLOR "overlay.clr"
- #define IDP_OVERLAY_BGMODE "overlay.bgmode"
- #define IDP_OVERLAY_TEXT "overlay.text"

4.24.1 Detailed Description

Defines for Overlay Text Parameters.

Table 4.51 OVERLAY TEXT PARAMETERS

Macro	Parameter Name	Type	Description
IDP_OVERLAY_INDEX	"overlay.index"	[int: 0-3]	Overlay: current index
IDP_OVERLAY_POS	"overlay.pos"	[int: 0-8]	Overlay: position
IDP_OVERLAY_FONT	"overlay.font"	[int: 0-3]	Overlay: font index
IDP_OVERLAY_COLOR	"overlay.clr"	[int]	Overlay: text color
IDP_OVERLAY_BGMODE	"overlay.bgmode"	[int: 0-3]	Overlay: backgound mode
IDP_OVERLAY_TEXT	"overlay.text"	[char∗]	Overlay: text

4.24.2 Macro Definition Documentation

4.24.2.1 IDP_OVERLAY_INDEX

```
#define IDP_OVERLAY_INDEX "overlay.index"
```

Overlay: current index

Type/Range [int: 0-3]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.24.2.2 IDP_OVERLAY_POS

```
#define IDP_OVERLAY_POS "overlay.pos"
```

Overlay: position

Type/Range [int: 0-8]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.24.2.3 IDP_OVERLAY_FONT

```
#define IDP_OVERLAY_FONT "overlay.font"
```

Overlay: font index

Type/Range [int: 0-3]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.24.2.4 IDP_OVERLAY_COLOR

```
#define IDP_OVERLAY_COLOR "overlay.clr"
```

Overlay: text color

Type/Range [int]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.24.2.5 IDP_OVERLAY_BGMODE

```
#define IDP_OVERLAY_BGMODE "overlay.bgmode"
```

Overlay: backgound mode

Type/Range [int: 0-3]

Note

Used by SetParamInt and GetParamInt [QT: no]

4.24.2.6 IDP_OVERLAY_TEXT

```
#define IDP_OVERLAY_TEXT "overlay.text"
```

Overlay: text

Type/Range [char*]

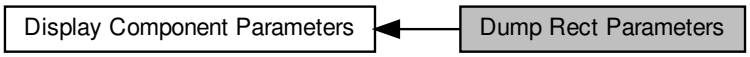
Note

Used by SetParamString and GetParamString [QT: no]

4.25 Dump Rect Parameters

Defines for Dump Rect Parameters.

Collaboration diagram for Dump Rect Parameters:



Macros

- #define IDP_DUMP_X "dump.x"
- #define IDP_DUMP_Y "dump.y"
- #define IDP_DUMP_W "dump.w"
- #define IDP_DUMP_H "dump.h"
- #define IDP_DUMP_COLOR "dump.clr"

4.25.1 Detailed Description

Defines for Dump Rect Parameters.

Table 4.52 DUMP RECT PARAMETERS

Macro	Parameter Name	Type	Description
IDP_DUMP_X	"dump.x"	[int: 1-w]	Dump rect: x-pos
IDP_DUMP_Y	"dump.y"	[int: 1-h]	Dump rect: y-pos
IDP_DUMP_W	"dump.w"	[int: 1-(w-x)]	Dump rect: width
IDP_DUMP_H	"dump.h"	[int: 1-(h-y)]	Dump rect: height
IDP_DUMP_COLOR	"dump.clr"	[int]	Dump rect: color (optional)

4.25.2 Macro Definition Documentation

4.25.2.1 IDP_DUMP_X

```
#define IDP_DUMP_X "dump.x"
```

Dump rect: x-pos

Type/Range [int: 1-w]

Note

Used by SetParamInt and GetParamInt [QT: yes]

4.25.2.2 IDP_DUMP_Y

```
#define IDP_DUMP_Y "dump.y"
```

Dump rect: y-pos

Type/Range [int: 1-h]

Note

Used by SetParamInt and GetParamInt [QT: yes]

4.25.2.3 IDP_DUMP_W

```
#define IDP_DUMP_W "dump.w"
```

Dump rect: width

Type/Range [int: 1-(w-x)]

Note

Used by SetParamInt and GetParamInt [QT: yes]

4.25.2.4 IDP_DUMP_H

```
#define IDP_DUMP_H "dump.h"
```

Dump rect: height

Type/Range [int: 1-(h-y)]

Note

Used by SetParamInt and GetParamInt [QT: yes]

4.25.2.5 IDP_DUMP_COLOR

```
#define IDP_DUMP_COLOR "dump.clr"
```

Dump rect: color (optional)

Type/Range [int]

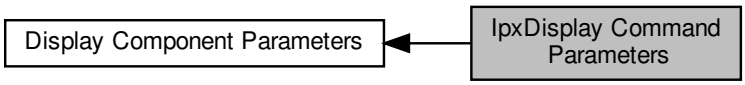
Note

Used by SetParamInt and GetParamInt [QT: no]

4.26 IpxDisplay Command Parameters

Defines for IpxDisplay Command Parameters.

Collaboration diagram for IpxDisplay Command Parameters:



Macros

- #define IDPC_SET_CORRECTION "processing.correction"
- #define IDPC_CMD_VIEW_ZOOM_IN "display.zoom.in"
- #define IDPC_CMD_VIEW_ZOOM_OUT "display.zoom.out"
- #define IDPC_CMD_VIEW_ATCENTER "display.atcenter"
- #define IDPC_CMD_VIEW_AT "display.center.at"
- #define IDPC_CMD_VIEW_PARAMS "display.params.set"
- #define IDPC_CMD_CORR_CALC "correction.calc"
- #define IDPC_CMD_OVERLAY_SHOW "overlay.show"
- #define IDPC_CMD_OVERLAY_HIDE "overlay.hide"
- #define IDPC_CMD_MANAGED_ON "playback.managed.on"
- #define IDPC_CMD_MANAGED_OFF "playback.managed.off"
- #define IDPC_CMD_DUMP_ON "display.dump.on"
- #define IDPC_CMD_DUMP_OFF "display.dump.off"
- #define IDPC_CMD_FILTER_ADD "filter.add"
- #define IDPC_CMD_FILTER_DEL "filter.del"
- #define IDPC_CMD_PROC_ADD "processing.proc.add"
- #define IDPC_CMD_PROC_DEL "processing.proc.del"
- #define IDPC_CMD_MENU_SHOW "display.menu.show"

4.26.1 Detailed Description

Defines for IpxDisplay Command Parameters.

Table 4.53 IPXDISPLAY COMMAND PARAMETERS

Macro	Parameter Name	Description
IDPC_SET_CORRECTION	"processing.correction"	Parameters IDP_CORR_(XX) should be set before command call
IDPC_CMD_VIEW_ZOOM_IN	"display.zoom.in"	Zoom in (no params)
IDPC_CMD_VIEW_ZOOM_OUT	"display.zoom.out"	Zoom out (no params)

Macro	Parameter Name	Description
IDPC_CMD_VIEW_ATCENTER	"display.atcenter"	View at the center of image (no params)
IDPC_CMD_VIEW_AT	"display.center.at"	View at the specific position (IDP_VIEW_X, IDP_VIEW_Y should be set)
IDPC_CMD_CORR_CALC	"correction.calc"	Results placed in IDP_CALC_GAIN_(XX) parameters
IDPC_CMD_OVERLAY_SHOW	"overlay.show"	Show current overlay text with current parameters (current index specified by IDP↩ _OVER_INDEX)
IDPC_CMD_OVERLAY_HIDE	"overlay.hide"	Hide current overlay text (current index specified by IDP_OVER_INDEX)
IDPC_CMD_MANAGED_ON	"playback.managed.on"	Set "managed" state (try to keep specified FPS value, see IDP_MANAGED_FPS)
IDPC_CMD_MANAGED_OFF	"playback.managed.off"	Clear "managed" state
IDPC_CMD_DUMP_ON	"display.dump.on"	Show dump rect (IDP_DUMP_X, IDP_D↩ UMP_Y, IDP_DUMP_W, IDP_DUMP_H)
IDPC_CMD_DUMP_OFF	"display.dump.off"	Hide dump rect
IDPC_CMD_FILTER_ADD	"filter.add"	Add processing filter
IDPC_CMD_FILTER_DEL	"filter.del"	Remove processing filter

4.26.2 Macro Definition Documentation

4.26.2.1 IDPC_SET_CORRECTION

```
#define IDPC_SET_CORRECTION "processing.correction"
```

Parameters IDP_CORR_(XX) should be set before command call

Note

Used by RunCommand [QT: no]

4.26.2.2 IDPC_CMD_VIEW_ZOOM_IN

```
#define IDPC_CMD_VIEW_ZOOM_IN "display.zoom.in"
```

Zoom in (no params)

Note

Used by RunCommand [QT: yes]

4.26.2.3 IDPC_CMD_VIEW_ZOOM_OUT

```
#define IDPC_CMD_VIEW_ZOOM_OUT "display.zoom.out"
```

Zoom out (no params)

Note

Used by RunCommand [QT: yes]

4.26.2.4 IDPC_CMD_VIEW_ATCENTER

```
#define IDPC_CMD_VIEW_ATCENTER "display.atcenter"
```

View at the center of image (no params)

Note

Used by RunCommand [QT: yes]

4.26.2.5 IDPC_CMD_VIEW_AT

```
#define IDPC_CMD_VIEW_AT "display.center.at"
```

View at the specific position (IDP_VIEW_X, IDP_VIEW_Y should be set)

Note

Used by RunCommand [QT: no]

4.26.2.6 IDPC_CMD_VIEW_PARAMS

```
#define IDPC_CMD_VIEW_PARAMS "display.params.set"
```

Set View parameters

Note

Used by RunCommand [QT: no]

4.26.2.7 IDPC_CMD_CORR_CALC

```
#define IDPC_CMD_CORR_CALC "correction.calc"
```

Results placed in IDP_CALC_GAIN_(XX) parameters

Note

Used by RunCommand [QT: no]

4.26.2.8 IDPC_CMD_OVERLAY_SHOW

```
#define IDPC_CMD_OVERLAY_SHOW "overlay.show"
```

Show current overlay text with current parameters (current index specified by IDP_OVER_INDEX)

Note

Used by RunCommand [QT: no]

4.26.2.9 IDPC_CMD_OVERLAY_HIDE

```
#define IDPC_CMD_OVERLAY_HIDE "overlay.hide"
```

Hide current overlay text (current index specified by IDP_OVER_INDEX)

Note

Used by RunCommand [QT: no]

4.26.2.10 IDPC_CMD_MANAGED_ON

```
#define IDPC_CMD_MANAGED_ON "playback.managed.on"
```

Set "managed" state (try to keep specified FPS value, see IDP_MANAGED_FPS)

Note

Used by RunCommand [QT: no]

4.26.2.11 IDPC_CMD_MANAGED_OFF

```
#define IDPC_CMD_MANAGED_OFF "playback.managed.off"
```

Clear "managed" state

Note

Used by RunCommand [QT: no]

4.26.2.12 IDPC_CMD_DUMP_ON

```
#define IDPC_CMD_DUMP_ON "display.dump.on"
```

Show dump rect (IDP_DUMP_X, IDP_DUMP_Y, IDP_DUMP_W, IDP_DUMP_H)

Note

Used by RunCommand [QT: yes]

4.26.2.13 IDPC_CMD_DUMP_OFF

```
#define IDPC_CMD_DUMP_OFF "display.dump.off"
```

Hide dump rect

Note

Used by RunCommand [QT: yes]

4.26.2.14 IDPC_CMD_FILTER_ADD

```
#define IDPC_CMD_FILTER_ADD "filter.add"
```

Add processing filter [QT: no]

4.26.2.15 IDPC_CMD_FILTER_DEL

```
#define IDPC_CMD_FILTER_DEL "filter.del"
```

Remove processing filter [QT: no]

4.26.2.16 IDPC_CMD_PROC_ADD

```
#define IDPC_CMD_PROC_ADD "processing.proc.add"
```

Add processor [QT: no]

4.26.2.17 IDPC_CMD_PROC_DEL

```
#define IDPC_CMD_PROC_DEL "processing.proc.del"
```

Remove processor [QT: no]

4.26.2.18 IDPC_CMD_MENU_SHOW

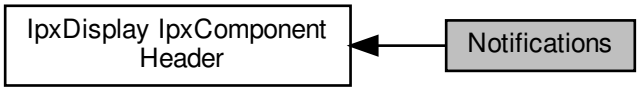
```
#define IDPC_CMD_MENU_SHOW "display.menu.show"
```

Show context menu at IDP_MENU_X, IDP_MENU_Y, result placed to IDP_MENU_CMD [QT: no]

4.27 Notifications

Defines for Notifications.

Collaboration diagram for Notifications:



Macros

- #define IPXD_LBUTTON_DOWN 0x4002
- #define IPXD_LBUTTON_UP 0x4003
- #define IPXD_RBUTTON_DOWN 0x4004
- #define IPXD_CURSOR_MOVED 0x4008
- #define IPXD_KEY_DOWN 0x4009
- #define IPXD_VIEW_CHANGED 0x4010
- #define IPXD_CCLR_CHANGED 0x4012
- #define IPXD_PLAYBACK_FAILED 0x4014
- #define IPXD_ERROR_OPENGL 0x4300

4.27.1 Detailed Description

Defines for Notifications.

4.27.2 Macro Definition Documentation

4.27.2.1 IPXD_LBUTTON_DOWN

```
#define IPXD_LBUTTON_DOWN 0x4002
```

Left mouse button down, param = MAKELONG(cursor.x, cursor.y), processing skipped if return = 1 [QT: yes]

4.27.2.2 IPXD_LBUTTON_UP

```
#define IPXD_LBUTTON_UP 0x4003
```

Left mouse button up, param = MAKELONG(cursor.x, cursor.y), processing skipped if return = 1 [QT: yes]

4.27.2.3 IPXD_RBUTTON_DOWN

```
#define IPXD_RBUTTON_DOWN 0x4004
```

Show context menu, param = MAKELONG(cursor.x, cursor.y) [QT: yes]

4.27.2.4 IPXD_CURSOR_MOVED

```
#define IPXD_CURSOR_MOVED 0x4008
```

Cursor moved, param = MAKELONG(cursor.x, cursor.y) [QT: yes]

4.27.2.5 IPXD_KEY_DOWN

```
#define IPXD_KEY_DOWN 0x4009
```

Keydown notification, param = MAKELONG(key code, repeat count) [QT: yes]

4.27.2.6 IPXD_VIEW_CHANGED

```
#define IPXD_VIEW_CHANGED 0x4010
```

View parameters changed [QT: yes]

4.27.2.7 IPXD_CCLR_CHANGED

```
#define IPXD_CCLR_CHANGED 0x4012
```

Current color changed [QT: yes]

4.27.2.8 IPXD_PLAYBACK_FAILED

```
#define IPXD_PLAYBACK_FAILED 0x4014
```

Playback failed (image format not supported), param 'reason' (IPXD_ERROR-x) [QT: mpno]

4.27.2.9 IPXD_ERROR_OPENGL

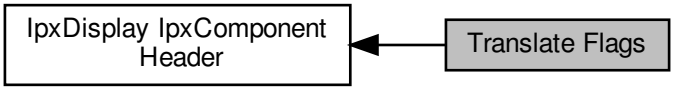
```
#define IPXD_ERROR_OPENGL 0x4300
```

Error rendering image with OpenGL, param = reason [QT: no]

4.28 Translate Flags

Defines for Translate Flags.

Collaboration diagram for Translate Flags:



Macros

- #define IDFL_SCR_IMG 0x0001
- #define IDFL_IMG_SCR 0x0100

4.28.1 Detailed Description

Defines for Translate Flags.

4.28.2 Macro Definition Documentation

4.28.2.1 IDFL_SCR_IMG

```
#define IDFL_SCR_IMG 0x0001
```

Translate flags: Screen to image [QT: yes]

4.28.2.2 IDFL_IMG_SCR

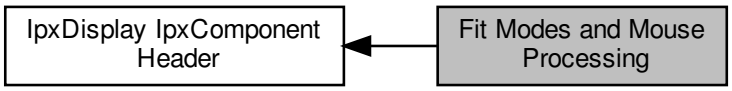
```
#define IDFL_IMG_SCR 0x0100
```

Translate flags: Image to screen [QT: yes]

4.29 Fit Modes and Mouse Processing

Defines for Fit Modes and Mouse Processing.

Collaboration diagram for Fit Modes and Mouse Processing:



Macros

- #define IPXD_FIT_NONE 0L
- #define IPXD_FIT_WINDOW 1L
- #define IPXD_FIT_FILL 2L
- #define IPXD_FIT_FULLSIZE 3L
- #define IPXD_MOUSE_DEFAULT 0
- #define IPXD_MOUSE_SKIP 1
- #define IPXD_MOUSE_LOCK 2

4.29.1 Detailed Description

Defines for Fit Modes and Mouse Processing.

4.29.2 Macro Definition Documentation

4.29.2.1 IPXD_FIT_NONE

```
#define IPXD_FIT_NONE 0L
```

Off [QT: yes]

4.29.2.2 IPXD_FIT_WINDOW

```
#define IPXD_FIT_WINDOW 1L
```

Fit to window [QT: yes]

4.29.2.3 IPXD_FIT_FILL

```
#define IPXD_FIT_FILL 2L
```

Fill window with image [QT: yes]

4.29.2.4 IPXD_FIT_FULLSIZE

```
#define IPXD_FIT_FULLSIZE 3L
```

Original size (100%) [QT: yes]

4.29.2.5 IPXD_MOUSE_DEFAULT

```
#define IPXD_MOUSE_DEFAULT 0
```

Do default processing [QT: no]

4.29.2.6 IPXD_MOUSE_SKIP

```
#define IPXD_MOUSE_SKIP 1
```

Skip mouse action [QT: no]

4.29.2.7 IPXD_MOUSE_LOCK

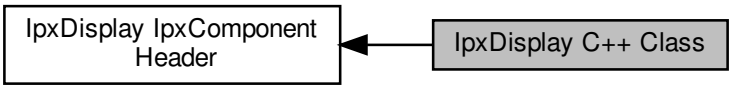
```
#define IPXD_MOUSE_LOCK 2
```

Lock mouse (capture) [QT: no]

4.30 IpxDisplay C++ Class

C++ Class for IpxDisplay.

Collaboration diagram for IpxDisplay C++ Class:



Classes

- class IpxDisplay

  A Class for IpxDisplay modules that contains methods to display IpxImage images. This class is responsible for displaying video frames and still images.

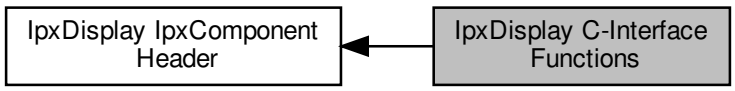
4.30.1 Detailed Description

C++ Class for IpxDisplay.

4.31 IpxDisplay C-Interface Functions

C-interface functions for IpxDisplay.

Collaboration diagram for IpxDisplay C-Interface Functions:



Functions

- IPXD_EXTERN_C IPXD_API IpxHandle IPXD_CALL IpxDisplay_CreateComponent ()

  This C-interface function returns the IpxHandle for the created IpxDisplay instance.
- IPXD_EXTERN_C IPXD_API void IPXD_CALL IpxDisplay_DeleteComponent (IpxHandle hDisplay)

  This C-interface function deletes the IpxHandle hDisplay component and all associated resources obtained by the IpxDisplay object.
- IPXD_EXTERN_C IPXD_API IpxComponent *IPXD_CALL IpxDisplay_GetComponent (IpxHandle hDisplay)

  This C-interface function returns the IpxHandle for the created IpxImageConverter instance.
- IPXD_EXTERN_C IPXD_API IpxError IPXD_CALL IpxDisplay_Initialize (IpxHandle hDisplay, void *displayWindow, const char *mode, IpxImage *imageParams)

  This C-interface function initializes the display library for playing videos/still images with the specified mode and image parameters.
- IPXD_EXTERN_C IPXD_API IpxError IPXD_CALL IpxDisplay_DisplayVideo (IpxHandle hDisplay, const IpxImage *pImage)

  This C-interface function displays the video frame.
- IPXD_EXTERN_C IPXD_API IpxError IPXD_CALL IpxDisplay_DisplayImage (IpxHandle hDisplay, const IpxImage *pImage, const char *mode)

  This C-interface function displays the still image.
- IPXD_EXTERN_C IPXD_API IpxError IPXD_CALL IpxDisplay_ConvertImage (IpxHandle hDisplay, const IpxImage *pSrc, IpxImage *pDst)

  This C-interface function converts the input source IpxImage to the targeted output destination.

4.31.1 Detailed Description

C-interface functions for IpxDisplay.

4.31.2 Function Documentation

4.31.2.1 IpxDisplay_CreateComponent()

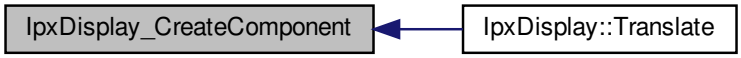
```
IPXD_EXTERN_C IPXD_API IpxHandle IPXD_CALL IpxDisplay_CreateComponent ( )
```

This C-interface function returns the IpxHandle for the created IpxDisplay instance.

Returns

Returns the IpxHandle for the created IpxDisplay object

Here is the caller graph for this function:



4.31.2.2 IpxDisplay_DeleteComponent()

```
IPXD_EXTERN_C IPXD_API void IPXD_CALL IpxDisplay_DeleteComponent (
            IpxHandle hDisplay )
```

This C-interface function deletes the IpxHandle hDisplay component and all associated resources obtained by the IpxDisplay object.

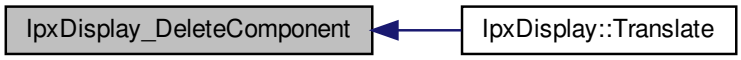
Parameters

in	*hDisplay*	Pointer to the IpxHandle for the IpxDisplay instance

Returns

Void

Here is the caller graph for this function:



4.31.2.3 IpxDisplay_GetComponent()

```
IPXD_EXTERN_C IPXD_API IpxComponent* IPXD_CALL IpxDisplay_GetComponent (
            IpxHandle hDisplay )
```

This C-interface function returns the IpxHandle for the created IpxImageConverter instance.

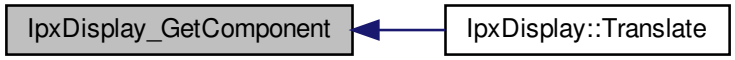
Parameters

in	*hDisplay*	Pointer to the IpxHandle for the IpxDisplay instance

Returns

Returns the IpxHandle for the IpxDisplay object component

Here is the caller graph for this function:



4.31.2.4 IpxDisplay_Initialize()

```
IPXD_EXTERN_C IPXD_API IpxError IPXD_CALL IpxDisplay_Initialize (
            IpxHandle hDisplay,
            void * displayWindow,
            const char * mode,
            IpxImage * imageParams )
```

This C-interface function initializes the display library for playing videos/still images with the specified mode and image parameters.

Parameters

in	*hDisplay*	pointer to the IpxHandle for the IpxDisplay instance
in	*displayWindow*	pointer to window. If the displayWindow is not specified, it will create a window.
in	*mode*	Display mode ("GDI", "OpenGL" mode or "auto" (default) for auto-detection)
in	*imageParams*	pointer to Image Parameters

Returns

Returns an error code:

- If successful, the IpxError code is IPX_ERR_OK and the display library has been initialized.
- Otherwise, the initialization of the display library failed.

Parameters

in	*hDisplay*	Pointer to the IpxHandle for the IpxDisplay

Here is the caller graph for this function:

4.31.2.5 IpxDisplay_DisplayVideo()

```
IPXD_EXTERN_C IPXD_API IpxError IPXD_CALL IpxDisplay_DisplayVideo (
            IpxHandle hDisplay,
            const IpxImage * pImage )
```

This C-interface function displays the video frame.

Parameters

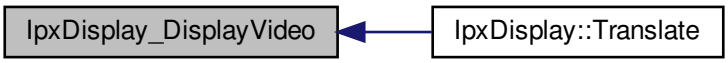
in	*hDisplay*	pointer to the IpxHandle for the IpxDisplay instance
in	*pImage*	Pointer to the IpxImage

Returns

Returns an error code:

- If successful, the IpxError code is IPX_ERR_OK and the function displays the video frame.
- Otherwise, the video frame is not displayed

Here is the caller graph for this function:



4.31.2.6 IpxDisplay_DisplayImage()

```
IPXD_EXTERN_C IPXD_API IpxError IPXD_CALL IpxDisplay_DisplayImage (
            IpxHandle hDisplay,
            const IpxImage * pImage,
            const char * mode )
```

This C-interface function displays the still image.

Parameters

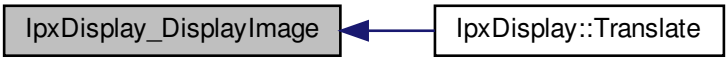
in	*hDisplay*	pointer to the IpxHandle for the IpxDisplay instance
in	*pImage*	Pointer to the IpxImage image
in	*mode*	Display mode ("GDI", "OpenGL" mode or "auto" (default) for auto-detection)

Returns

Returns an error code:

- If successful, the IpxError code is IPX_ERR_OK and the function displays the still image.
- Otherwise, the video frame is not displayed.

Here is the caller graph for this function:



4.31.2.7 IpxDisplay_ConvertImage()

```
IPXD_EXTERN_C IPXD_API IpxError IPXD_CALL IpxDisplay_ConvertImage (
            IpxHandle hDisplay,
            const IpxImage * pSrc,
            IpxImage * pDst )
```

This C-interface function converts the input source IpxImage to the targeted output destination.

Parameters

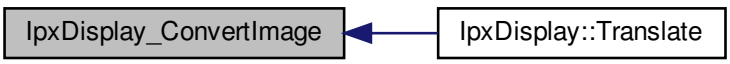
in	*hDisplay*	Pointer to the IpxHandle for the IpxDisplay
in	*pSrc*	Pointer to the source IpxImage
out	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

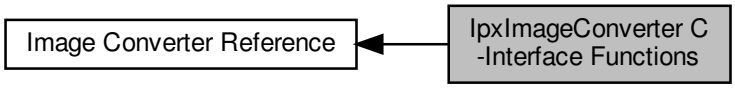
- IPX_ERR_OK Successfully converts the source IpxImage to the targeted output destination IpxImage
- If IpxError error code < 0, then it returns a negative error code indicating problems converting the IpxImage

Here is the caller graph for this function:



4.32 IpxImageConverter C-Interface Functions

Collaboration diagram for IpxImageConverter C-Interface Functions:



Functions

- IPXC_EXTERN_C IPXC_API IpxHandle IPXC_CALL IpxImageConverter_CreateComponent ()

  This C-interface function returns the IpxHandle for the created IpxImageConverter instance.
- IPXC_EXTERN_C IPXC_API void IPXC_CALL IpxImageConverter_DeleteComponent (IpxHandle hImage↩ Converter)

  This C-interface function deletes the IpxHandle hImageConverter component and all associated resources obtained by the IpxImageConverter object.
- IPXC_EXTERN_C IPXC_API IpxHandle IPXC_CALL IpxImageConverter_GetComponent (IpxHandle hImage↩ Converter)

  This C-interface function returns the IpxHandle for the created IpxImageConverter instance.
- IPXC_EXTERN_C IPXC_API IpxError IPXC_CALL IpxImageConverter_ConvertImage (IpxHandle hImage↩ Converter, IpxImage ∗source, IpxImage ∗output)

  This C-interface function converts the input source IpxImage to the targeted output destination.
- IPXC_EXTERN_C IPXC_API IpxError IPXC_CALL IpxImageConverter_IIConvert (IpxHandle hImageConverter, IpxImage ∗image_in, unsigned long outPixelType, IpxImage ∗∗image_out)

  This C-interface function converts the input source IpxImage to the targeted output destination IpxImage based on the output pixel type.

4.32.1 Detailed Description

Additional documentation for C-interface functions for 'IpxImageConverter'

4.32.2 Function Documentation

4.32.2.1 IpxImageConverter_CreateComponent()

```
IPXC_EXTERN_C IPXC_API IpxHandle IPXC_CALL IpxImageConverter_CreateComponent ( )
```

This C-interface function returns the IpxHandle for the created IpxImageConverter instance.

Returns

Returns the IpxHandle for the created IpxImageConverter object

4.32.2.2 IpxImageConverter_DeleteComponent()

```
IPXC_EXTERN_C IPXC_API void IPXC_CALL IpxImageConverter_DeleteComponent (
            IpxHandle hImageConverter )
```

This C-interface function deletes the IpxHandle hImageConverter component and all associated resources obtained by the IpxImageConverter object.

Parameters

in	*hImageConverter*	Pointer to the IpxHandle for the IpxImageConverter instance

Returns

void

4.32.2.3 IpxImageConverter_GetComponent()

```
IPXC_EXTERN_C IPXC_API IpxHandle IPXC_CALL IpxImageConverter_GetComponent (
            IpxHandle hImageConverter )
```

This C-interface function returns the IpxHandle for the created IpxImageConverter instance.

Parameters

in	*hImageConverter*	Pointer to the IpxHandle for the IpxImageConverter instance

Returns

Returns the IpxHandle for the IpxImageConverter object component

4.32.2.4 IpxImageConverter_ConvertImage()

```
IPXC_EXTERN_C IPXC_API IpxError IPXC_CALL IpxImageConverter_ConvertImage (
            IpxHandle hImageConverter,
            IpxImage * source,
            IpxImage * output )
```

This C-interface function converts the input source IpxImage to the targeted output destination.

Parameters

in	*hImageConverter*	Pointer to the IpxHandle for the IpxImage Converter
in	*source*	Pointer to the source IpxImage
out	*output*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- IPX_ERR_OK Successfully converts the source IpxImage to the targeted output destination IpxImage
- If IpxError error code < 0, then it returns a negative error code indicating problems converting the IpxImage

4.32.2.5 IpxImageConverter_IIConvert()

```
IPXC_EXTERN_C IPXC_API IpxError IPXC_CALL IpxImageConverter_IIConvert (
            IpxHandle hImageConverter,
            IpxImage * image_in,
            unsigned long outPixelType,
            IpxImage ** image_out )
```

This C-interface function converts the input source IpxImage to the targeted output destination IpxImage based on the output pixel type.

Parameters

in	*hImageConverter*	Pointer of the IpxHandle for the IpxImage Converter
in	*image_in*	Pointer to the source IpxImage
in	*outPixelType*	Output pixel type
out	*image_out*	Pointer to the output destination IpxImage

Returns

Returns the error code:

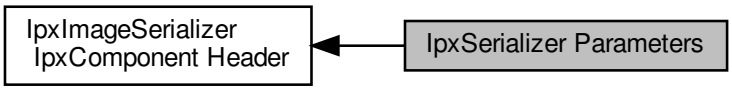
- IPX_ERR_OK Successfully converts the source IpxImage to the targeted output destination IpxImage based on the output pixel type.

- `If` IpxError error code $<$ 0, then it returns a negative error code indicating problems converting the IpxImage

4.33 IpxSerializer Parameters

Defines for IpxSerializer Parameters.

Collaboration diagram for IpxSerializer Parameters:



Macros

- #define ISP_NO_REALLOC "NoRealloc"
- #define ISP_JPEG_QUALITY "jpeg.quality"
- #define ISP_MIN_QUANTIZER "min.quantizer"
- #define ISP_MAX_QUANTIZER "max.quantizer"
- #define ISP_TICKS_PER_SEC "ticks.per.sec"
- #define ISP_MOVIE_COMPRESSOR "movie.compressor"
- #define ISP_MOVIE_COMPRESSORS "movie.compressors"
- #define ISP_ADD_PALETTE "add.palette"

4.33.1 Detailed Description

Defines for IpxSerializer Parameters.

Table 4.65 IpxSerializer Parameters

Macro	Parameter Name	Type	Description
ISP_NO_REALLOC	"NoRealloc"	[int: 0, 1]	does not allow to realloc buffers on runtime
ISP_JPEG_QUALITY	"jpeg.quality"	[int: 1,100]	jpeg quality (1..100; 85 by default)
ISP_MIN_QUANTIZER	"min.quantizer"	[int]	codec minimum quantizer (15 by default, -1 means codec's default value)
ISP_MAX_QUANTIZER	"max.quantizer"	[int]	codec maximum quantizer (15 by default, -1 means codec's default value)
ISP_TICKS_PER_SEC	"ticks.per.sec"	[int]	meaning of timestamp ticks (1000000000 by default, means timestamp in nanoseconds)
ISP_MOVIE_COMPRESSOR	"movie.compressor"	[char∗]	movie compressor ("Uncompressed" by default)
ISP_MOVIE_COMPRESSORS	"movie.compressors"	[char∗]	list of available compressors separated by |
ISP_ADD_PALETTE	"add.palette"	[int: 0, 1]	add palette to the header if image pixeltype is 8 bit grayscale (default 0)

4.33.2 Macro Definition Documentation

4.33.2.1 ISP_NO_REALLOC

```
#define ISP_NO_REALLOC "NoRealloc"
```

Does not allow to realloc buffers on runtime

Type/Range [int: 0, 1]

Note

Used by SetParamInt and GetParamInt

4.33.2.2 ISP_JPEG_QUALITY

```
#define ISP_JPEG_QUALITY "jpeg.quality"
```

Jpeg quality (1..100; 85 by default)

Type/Range [int: 1,100]

Note

Used by SetParamInt and GetParamInt

4.33.2.3 ISP_MIN_QUANTIZER

```
#define ISP_MIN_QUANTIZER "min.quantizer"
```

Codec minimum quantizer (15 by default, -1 means codec's default value will be used)

Type [int]

Note

Used by SetParamInt and GetParamInt

4.33.2.4 ISP_MAX_QUANTIZER

```
#define ISP_MAX_QUANTIZER "max.quantizer"
```

Codec maximum quantizer (15 by default, -1 means codec's default value will be used)

Type [int]

Note

Used by SetParamInt and GetParamInt

4.33.2.5 ISP_TICKS_PER_SEC

```
#define ISP_TICKS_PER_SEC "ticks.per.sec"
```

Meaning of timestamp ticks (1000000000 by default, means timestamp in nanoseconds)

Type [int]

Note

Used by SetParamInt and GetParamInt

4.33.2.6 ISP_MOVIE_COMPRESSOR

```
#define ISP_MOVIE_COMPRESSOR "movie.compressor"
```

Movie compressor (char∗; "Uncompressed" by default)

Type/**Range** [char∗]

Note

Used by SetParamString and GetParamString

4.33.2.7 ISP_MOVIE_COMPRESSORS

```
#define ISP_MOVIE_COMPRESSORS "movie.compressors"
```

List of available compressors separated by |

Type/Range [char*]

Note

Used by SetParamString and GetParamString

4.33.2.8 ISP_ADD_PALETTE

```
#define ISP_ADD_PALETTE "add.palette"
```

Add palette to the header if image pixeltype is 8 bit grayscale (default 0)

Type/Range [int: 0, 1]

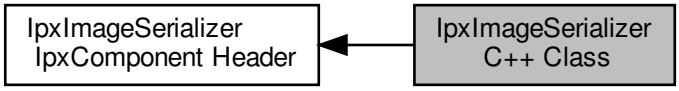
Note

Used by SetParamInt and GetParamInt

4.34 IpxImageSerializer C++ Class

C++ Class for IpxImageSerializer.

Collaboration diagram for IpxImageSerializer C++ Class:



Classes

- class IpxImageSerializer

  IpxComponent to save IpxImage to disk.

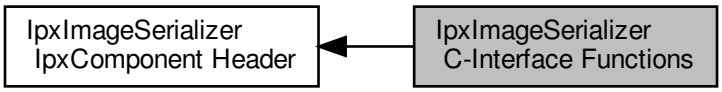
4.34.1 Detailed Description

C++ Class for IpxImageSerializer.

4.35 IpxImageSerializer C-Interface Functions

C-interface functions for IpxImageSerializer.

Collaboration diagram for IpxImageSerializer C-Interface Functions:



Functions

- IPXS_EXTERN_C IPXS_API IpxHandle IPXS_CALL IpxImageSerializer_CreateComponent (bool enableMovies)

  This C-interface function returns the IpxHandle for the created IpxImageSerializer instance.
- IPXS_EXTERN_C IPXS_API void IPXS_CALL IpxImageSerializer_DeleteComponent (IpxHandle hImage↩ Serializer)

  This C-interface function returns the IpxHandle for the created IpxImageSerializer instance.
- IPXS_EXTERN_C IPXS_API IpxHandle IPXS_CALL IpxImageSerializer_GetComponent (IpxHandle hImage↩ Serializer)

  This C-interface function returns the IpxHandle for the created IpxImageSerializer instance.
- IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_StartSeriesRecord (IpxHandle hImage↩ Serializer, IpxImage ∗pSrc, const char ∗format)

  This C-interface function starts the series record.
- IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_StartMovieRecord (IpxHandle hImage↩ Serializer, IpxImage ∗pSrc, const char ∗fileName, double fps)

  This C-interface function starts the series record.
- IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_FinishRecord (IpxHandle hImage↩ Serializer)

  This C-interface function finishes the record.
- IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_Save (IpxHandle hImageSerializer, Ipx↩ Image ∗image, const char ∗fileName)

  This C-interface function saves the record.
- IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_Load (IpxHandle hImageSerializer, Ipx↩ Image ∗image, const char ∗fileName)

  This C-interface function loads the record.

4.35.1 Detailed Description

C-interface functions for IpxImageSerializer.

4.35.2 Function Documentation

4.35.2.1 IpxImageSerializer_CreateComponent()

```
IPXS_EXTERN_C IPXS_API IpxHandle IPXS_CALL IpxImageSerializer_CreateComponent (
            bool enableMovies )
```

This C-interface function returns the IpxHandle for the created IpxImageSerializer instance.

Parameters

in	*enableMovies*	flag to enable Movies

Returns

Returns the IpxHandle for the created IpxImageSerializer object

4.35.2.2 IpxImageSerializer_DeleteComponent()

```
IPXS_EXTERN_C IPXS_API void IPXS_CALL IpxImageSerializer_DeleteComponent (
            IpxHandle hImageSerializer )
```

This C-interface function returns the IpxHandle for the created IpxImageSerializer instance.

Parameters

in	*hImageSerializer*	Pointer to the IpxHandle for the IpxImageSerializer instance

Returns

void

4.35.2.3 IpxImageSerializer_GetComponent()

```
IPXS_EXTERN_C IPXS_API IpxHandle IPXS_CALL IpxImageSerializer_GetComponent (
            IpxHandle hImageSerializer )
```

This C-interface function returns the IpxHandle for the created IpxImageSerializer instance.

Parameters

in	*hImageSerializer*	Pointer to the IpxHandle for the IpxImageSerializer instance

Returns

Returns the IpxHandle for the IpxImageSerializer object component

4.35.2.4 IpxImageSerializer_StartSeriesRecord()

```
IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_StartSeriesRecord (
            IpxHandle hImageSerializer,
            IpxImage * pSrc,
            const char * format )
```

This C-interface function starts the series record.

Parameters

in	*hImageSerializer*	Pointer to the IpxHandle for the IpxImageSerializer instance
in	*pSrc*	input source Imperx Image
in	*format*	Image Format Type

Returns

Returns the error code:

- IPX_ERR_OK Successfully starts the series record.
- If IpxError error code < 0, then it returns a negative error code indicating problem starting the series record

4.35.2.5 IpxImageSerializer_StartMovieRecord()

```
IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_StartMovieRecord (
            IpxHandle hImageSerializer,
            IpxImage * pSrc,
            const char * fileName,
            double fps )
```

This C-interface function starts the series record.

Parameters

in	*hImageSerializer*	Pointer to the IpxHandle for the IpxImageSerializer instance
in	*pSrc*	input source Imperx Image
in	*fileName*	file name
in	*fps*	frames per second

Returns

Returns the error code:

- IPX_ERR_OK Successfully starts movie record.
- If IpxError error code < 0, then it returns a negative error code indicating problem starting the movie record

4.35.2.6 IpxImageSerializer_FinishRecord()

```
IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_FinishRecord (
            IpxHandle hImageSerializer )
```

This C-interface function finishes the record.

Parameters

in	*hImageSerializer*	Pointer to the IpxHandle for the IpxImageSerializer instance

Returns

Returns the error code:

- IPX_ERR_OK Successfully finishes the record.
- If IpxError error code < 0, then it returns a negative error code indicating problem finishing the record

4.35.2.7 IpxImageSerializer_Save()

```
IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_Save (
            IpxHandle hImageSerializer,
            IpxImage * image,
            const char * fileName )
```

This C-interface function saves the record.

Parameters

in	*hImageSerializer*	Pointer to the IpxHandle for the IpxImageSerializer instance
in	*image*	input source Imperx Image
in	*fileName*	file name

Returns

Returns the error code:

- IPX_ERR_OK Successfully saves the record
- If IpxError error code $<$ 0, then it returns a negative error code indicating problem saving the record

4.35.2.8 IpxImageSerializer_Load()

```
IPXS_EXTERN_C IPXS_API IpxError IPXS_CALL IpxImageSerializer_Load (
            IpxHandle hImageSerializer,
            IpxImage * image,
            const char * fileName )
```

This C-interface function loads the record.

Parameters

in	*hImageSerializer*	Pointer to the IpxHandle for the IpxImageSerializer instance
in	*image*	input source Imperx Image
in	*fileName*	file name

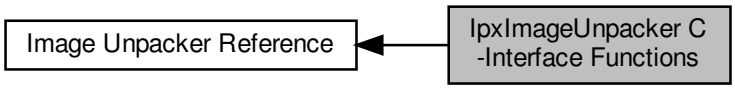
Returns

Returns the error code:

- IPX_ERR_OK Successfully allocates the IpxImage data.
- If IpxError error code $<$ 0, then it returns a negative error code indicating problems allocating IpxImage data

4.36 IpxImageUnpacker C-Interface Functions

Collaboration diagram for IpxImageUnpacker C-Interface Functions:



Functions

- IPXU_EXTERN_C IPXU_API IpxHandle IPXU_CALL IpxImageUnpacker_CreateComponent ()

  This C-interface function returns the IpxHandle for the created IpxImageUnpacker instance.
- IPXU_EXTERN_C IPXU_API void IPXU_CALL IpxImageUnpacker_DeleteComponent (IpxHandle hImage↩ Unpacker)

  This C-interface function deletes the IpxHandle hImageUnpacker component and all associated resources obtained by the IpxImageUnpacker object.
- IPXU_EXTERN_C IPXU_API IpxHandle IPXU_CALL IpxImageUnpacker_GetComponent (IpxHandle hImage↩ Unpacker)

  This C-interface function returns the IpxHandle for the created IpxImageUnpacker instance.
- IPXU_EXTERN_C IPXU_API IpxError IPXU_CALL IpxImageUnpacker_Unpack (IpxHandle hImageUnpacker, IpxImage *source, IpxImage *output)

  This C-interface function unpacks the input raw source IpxRAWImage to the targeted output destination IpxImage.

4.36.1 Detailed Description

Additional documentation for C-interface functions for 'IpxImageUnpacker'

4.36.2 Function Documentation

4.36.2.1 IpxImageUnpacker_CreateComponent()

```
IPXU_EXTERN_C IPXU_API IpxHandle IPXU_CALL IpxImageUnpacker_CreateComponent ( )
```

This C-interface function returns the IpxHandle for the created IpxImageUnpacker instance.

Returns

Returns the IpxHandle for the created IpxImageUnpacker object

4.36.2.2 IpxImageUnpacker_DeleteComponent()

```
IPXU_EXTERN_C IPXU_API void IPXU_CALL IpxImageUnpacker_DeleteComponent (
            IpxHandle hImageUnpacker )
```

This C-interface function deletes the IpxHandle hImageUnpacker component and all associated resources obtained by the IpxImageUnpacker object.

Parameters

in	*hImageUnpacker*	Pointer to the IpxHandle for the IpxImageUnpacker instance

Returns

void

4.36.2.3 IpxImageUnpacker_GetComponent()

```
IPXU_EXTERN_C IPXU_API IpxHandle IPXU_CALL IpxImageUnpacker_GetComponent (
            IpxHandle hImageUnpacker )
```

This C-interface function returns the IpxHandle for the created IpxImageUnpacker instance.

Parameters

in	*hImageUnpacker*	Pointer to the IpxHandle for the IpxImageUnpacker instance

Returns

Returns the IpxHandle for the IpxImageUnpacker object component

4.36.2.4 IpxImageUnpacker_Unpack()

```
IPXU_EXTERN_C IPXU_API IpxError IPXU_CALL IpxImageUnpacker_Unpack (
            IpxHandle hImageUnpacker,
            IpxImage * source,
            IpxImage * output )
```

This C-interface function unpacks the input raw source IpxRAWImage to the targeted output destination IpxImage.

Parameters

in	*hImageUnpacker*	Pointer of the IpxHandle for the IpxUnpacker
in	*source*	Pointer to the raw source IpxRawImage
out	*output*	Pointer to the output destination IpxImage

Returns

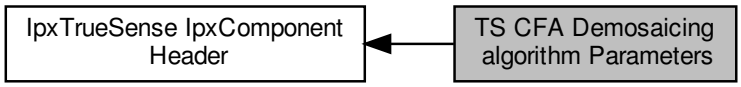
Returns the error code:

- IPX_ERR_OK Successfully unpacks the source IpxImage to the targeted output destination IpxImage.
- If IpxError error code $<$ 0, then it returns a negative error code indicating problems unpacking the IpxImage

4.37 TS CFA Demosaicing algorithm Parameters

Defines for TS CFA Demosaicing algorithms.

Collaboration diagram for TS CFA Demosaicing algorithm Parameters:



Macros

- #define TS_ALGO_TYPE "TrueSenseAlgType"
- #define TS_NOREALLOC "NoRealloc"
- #define TS_ALGO_NUM 7
- #define TSASIMPLEF 0
- #define TSASIMPLES 1
- #define TSABAYERLIKE 2
- #define TSAMEDIUM 3
- #define TSAQUALITY 4
- #define TRUES_OPENGL_MHC 5
- #define TRUES_OPENGL_MMA 6

4.37.1 Detailed Description

Defines for TS CFA Demosaicing algorithms.

Table 4.77 TS CFA Demosaicing Algorithm Parameters

Macro	Parameter Name	Type	Description
TS_ALGO_TYPE	"TrueSenseAlgType"	[int: 0, TS_ALGO_NUM - 1]	TrueSense Algorithm Type
TS_NOREALLOC	"NoRealloc"	[int: 0,1]	NoRealloc Enabled

4.37.2 Macro Definition Documentation

4.37.2.1 TS_ALGO_TYPE

```
#define TS_ALGO_TYPE "TrueSenseAlgType"
```

TrueSense Algorithm Type

Type/Range [int: 0, TS_ALGO_NUM - 1]

Note

Used by SetParamInt and GetParamInt

4.37.2.2 TS_NOREALLOC

```
#define TS_NOREALLOC "NoRealloc"
```

NoRealloc Enabled

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt

4.37.2.3 TS_ALGO_NUM

```
#define TS_ALGO_NUM 7
```

Number of Algorithms Supported

4.37.2.4 TSASIMPLEF

```
#define TSASIMPLEF 0
```

Simple algorithm. Average quality, high speed. You can set tonescale table in TrueSenseParam structure.

4.37.2.5 TSASIMPLES

```
#define TSASIMPLES 1
```

Simple Quality algorithm. Average quality, high speed. You can set tonescale table and white balance coefficients in TrueSenseParam structure.

4.37.2.6 TSABAYERLIKE

```
#define TSABAYERLIKE 2
```

Simple Bayer-like algorithm. Average quality, high speed. You can set tonescale table in TrueSenseParam structure.

4.37.2.7 TSAMEDIUM

```
#define TSAMEDIUM 3
```

High Quality algorithm. High quality, medium speed. You can set all of the adjusting parameters in TrueSenseParam structure.

4.37.2.8 TSAQUALITY

```
#define TSAQUALITY 4
```

High Quality algorithm. High quality, very low speed. You can set all of the adjusting parameters in TrueSenseParam structure.

4.37.2.9 TRUES_OPENGL_MHC

```
#define TRUES_OPENGL_MHC 5
```

OpenGL MHC algorithm.

4.37.2.10 TRUES_OPENGL_MMA

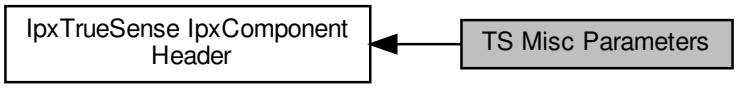
```
#define TRUES_OPENGL_MMA 6
```

OpenGL MMA algorithm.

4.38 TS Misc Parameters

Defines for TS Misc parameters.

Collaboration diagram for TS Misc Parameters:



Macros

- #define TS_THREADS_NUM "threads_num"
- #define TS_NORM_EN "normalizationEnable"
- #define TS_HORIZ_MIRRORED "horMirrored"
- #define TS_VER_MIRRORED "verMirrored"
- #define TS_MONO_ENABLED "monoEnable"
- #define TS_IMP_FILTER_ENABLED "impulseFilterEnable"
- #define TS_SHARPNESS_ENABLED "sharpnessEnable"
- #define TS_DARKFLOOR "darkFloor"

4.38.1 Detailed Description

Defines for TS Misc parameters.

Table 4.78 TS Misc Parameters

Macro	Parameter Name	Type	Description
TS_THREADS_NUM	"threads_num"	[int: 0-32]	Quantity of threads used in calculation. Default value is 0, it means maximum number of available threads
TS_NORM_EN	"normalizationEnable"	[int: 0,1]	Enable normalization. 0 - off, 1 - on. Default value is off
TS_HORIZ_MIRRORED	"horMirrored"	[int: 0,1]	If image is mirrored horizontally. Default value is 0.
TS_VER_MIRRORED	"verMirrored"	[int: 0,1]	If image is mirrored vertically. Default value is 0.
TS_MONO_ENABLED	"monoEnable"	[int: 0,1]	Switch on monochrome processing instead of color processing. 0 - color, 1 - monochrome. Reserved.
TS_IMP_FILTER_ENABLED	"impulseFilterEnable"	[int: 0,1]	Enable the impulse filter processing. 0 - off, 1 - on.
TS_SHARPNESS_ENABLED	"sharpnessEnable"	[int: 0,1]	Enable the sharpness processing. 0 - off, 1 - on.
TS_DARKFLOOR	"darkFloor"	[int: 0-4096]	Dark floor of raw image, fetched from raw file header.

4.38.2 Macro Definition Documentation

4.38.2.1 TS_THREADS_NUM

```
#define TS_THREADS_NUM "threads_num"
```

Quantity of threads used in calculation. Default value is 0, it means maximum number of available threads

Type/Range [int: 0-32]

Note

Used by SetParamInt and GetParamInt

4.38.2.2 TS_NORM_EN

```
#define TS_NORM_EN "normalizationEnable"
```

Enable normalization. 0 - off, 1 - on. Default value is off.

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt

4.38.2.3 TS_HORIZ_MIRRORED

```
#define TS_HORIZ_MIRRORED "horMirrored"
```

If image is mirrored horrizontally. Default value is 0.

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt

4.38.2.4 TS_VER_MIRRORED

```
#define TS_VER_MIRRORED "verMirrored"
```

If image is mirrored vertically. Default value is 0.

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt

4.38.2.5 TS_MONO_ENABLED

```
#define TS_MONO_ENABLED "monoEnable"
```

Switch on monochrome processing instead of color processing. 0 - color, 1 - monochrome. Reserved.

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt

4.38.2.6 TS_IMP_FILTER_ENABLED

```
#define TS_IMP_FILTER_ENABLED "impulseFilterEnable"
```

Enable the impulse filter processing. 0 - off, 1 - on.

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt

4.38.2.7 TS_SHARPNESS_ENABLED

```
#define TS_SHARPNESS_ENABLED "sharpnessEnable"
```

Enable the sharpness processing. 0 - off, 1 - on.

Type/Range [int: 0,1]

Note

Used by SetParamInt and GetParamInt

4.38.2.8 TS_DARKFLOOR

```
#define TS_DARKFLOOR "darkFloor"
```

Dark floor of raw image, fetched from raw file header.

Type/Range [int: 0,1]

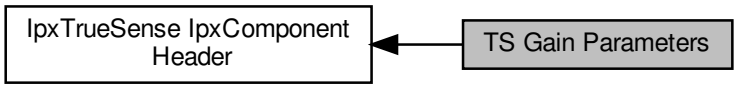
Note

Used by SetParamInt and GetParamInt

4.39 TS Gain Parameters

Defines for TS gain parameters.

Collaboration diagram for TS Gain Parameters:



Macros

- #define TS_RED_GAIN "redGain"
- #define TS_GREEN_GAIN "greenGain"
- #define TS_BLUE_GAIN "blueGain"
- #define TS_PAN_GAIN "panGain"
- #define TS_GLOBAL_GAIN "globalGain"
- #define TS_ANALOG_GAIN "analogGain"
- #define TS_ISO_ANALOGGAIN_0 "ISOAnalogGain_0"
- #define TS_ISO_ANALOGGAIN_1 "ISOAnalogGain_1"
- #define TS_ISO_ANALOGGAIN_2 "ISOAnalogGain_2"
- #define TS_ISO_ANALOGGAIN_3 "ISOAnalogGain_3"
- #define TS_ISO_ANALOGGAIN_4 "ISOAnalogGain_4"

4.39.1 Detailed Description

Defines for TS gain parameters.

Table 4.79 TS Gain Parameters

Macro	Parameter Name	Type	Description
TS_RED_GAIN	"redGain"	[float: DBL_MIN-DBL_MAX]	Red gain of white balance.
TS_GREEN_GAIN	"greenGain"	[float: DBL_MIN-DBL_MAX]	Green gain of white balance.
TS_BLUE_GAIN	"blueGain"	[float: DBL_MIN-DBL_MAX]	Blue gain of white balance.
TS_PAN_GAIN	"panGain"	[float: DBL_MIN-DBL_MAX]	Panchromatic gain of white balance. It should be set as 1 currently.
TS_GLOBAL_GAIN	"globalGain"	[float: DBL_MIN-DBL_MAX]	Digital gain. It will be applied to processing if more than 1.0

Macro	Parameter Name	Type	Description
TS_ANALOG_GAIN	"analogGain"	[float: DBL_MIN-DBL_MAX]	Actual sensor gain of raw image, fetched from raw file header.
TS_ISO_ANALOGGAIN_0	"ISOAnalogGain↩ _0"	[float: DBL_MIN-DBL_MAX]	Sensor gain array of typical ISO levels, used to interpolate intermediate noise variation slope and intercept.
TS_ISO_ANALOGGAIN_1	"ISOAnalogGain↩ _1"	[float: DBL_MIN-DBL_MAX]	Sensor gain array of typical ISO levels, used to interpolate intermediate noise variation slope and intercept.
TS_ISO_ANALOGGAIN_2	"ISOAnalogGain↩ _2"	[float: DBL_MIN-DBL_MAX]	Sensor gain array of typical ISO levels, used to interpolate intermediate noise variation slope and intercept.
TS_ISO_ANALOGGAIN_3	"ISOAnalogGain↩ _3"	[float: DBL_MIN-DBL_MAX]	Sensor gain array of typical ISO levels, used to interpolate intermediate noise variation slope and intercept.
TS_ISO_ANALOGGAIN_4	"ISOAnalogGain↩ _4"	[float: DBL_MIN-DBL_MAX]	Sensor gain array of typical ISO levels, used to interpolate intermediate noise variation slope and intercept.

4.39.2 Macro Definition Documentation

4.39.2.1 TS_RED_GAIN

```
#define TS_RED_GAIN "redGain"
```

Red gain of white balance.

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.39.2.2 TS_GREEN_GAIN

```
#define TS_GREEN_GAIN "greenGain"
```

Green gain of white balance.

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.39.2.3 TS_BLUE_GAIN

```
#define TS_BLUE_GAIN "blueGain"
```

Blue gain of white balance.

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.39.2.4 TS_PAN_GAIN

```
#define TS_PAN_GAIN "panGain"
```

Panchromatic gain of white balance. It should be set as 1 currently.

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.39.2.5 TS_GLOBAL_GAIN

```
#define TS_GLOBAL_GAIN "globalGain"
```

Digital gain. It will be applied to processing if more than 1.0.

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.39.2.6 TS_ANALOG_GAIN

```
#define TS_ANALOG_GAIN "analogGain"
```

Actual sensor gain of raw image, fetched from raw file header.

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.39.2.7 TS_ISO_ANALOGGAIN_0

```
#define TS_ISO_ANALOGGAIN_0 "ISOAnalogGain_0"
```

Sensor gain array of typical ISO levels

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope and intercept. Ex: ISO400_AnalogGain = 11.04 dB

4.39.2.8 TS_ISO_ANALOGGAIN_1

```
#define TS_ISO_ANALOGGAIN_1 "ISOAnalogGain_1"
```

Sensor gain array of typical ISO levels

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope and intercept. Ex: ISO800_AnalogGain = 17.69 dB

4.39.2.9 TS_ISO_ANALOGGAIN_2

```
#define TS_ISO_ANALOGGAIN_2 "ISOAnalogGain_2"
```

Sensor gain array of typical ISO levels

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope and intercept. Ex: ISO1600_AnalogGain = 23.96 dB

4.39.2.10 TS_ISO_ANALOGGAIN_3

```
#define TS_ISO_ANALOGGAIN_3 "ISOAnalogGain_3"
```

Sensor gain array of typical ISO levels

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope and intercept. Ex: ISO3200_AnalogGain = 29.91 dB

4.39.2.11 TS_ISO_ANALOGGAIN_4

```
#define TS_ISO_ANALOGGAIN_4 "ISOAnalogGain_4"
```

Sensor gain array of typical ISO levels

Type/Range [float: DBL_MIN-DBL_MAX]

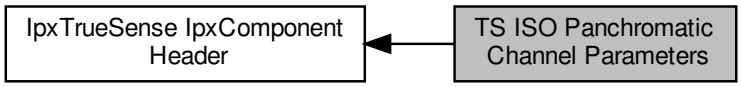
Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope and intercept. Ex: ISO6400_AnalogGain = 36.77 dB

4.40 TS ISO Panchromatic Channel Parameters

Defines for TS ISO Panchromatic channel parameters.

Collaboration diagram for TS ISO Panchromatic Channel Parameters:



Macros

- #define TS_ISO_PANSLOPE_0 "ISOPanSlope_0"
- #define TS_ISO_PANSLOPE_1 "ISOPanSlope_1"
- #define TS_ISO_PANSLOPE_2 "ISOPanSlope_2"
- #define TS_ISO_PANSLOPE_3 "ISOPanSlope_3"
- #define TS_ISO_PANSLOPE_4 "ISOPanSlope_4"
- #define TS_ISO_PANINTERCEPT_0 "ISOPanIntercept_0"
- #define TS_ISO_PANINTERCEPT_1 "ISOPanIntercept_1"
- #define TS_ISO_PANINTERCEPT_2 "ISOPanIntercept_2"
- #define TS_ISO_PANINTERCEPT_3 "ISOPanIntercept_3"
- #define TS_ISO_PANINTERCEPT_4 "ISOPanIntercept_4"

4.40.1 Detailed Description

Defines for TS ISO Panchromatic channel parameters.

Table 4.80 TS ISO Panchromatic Channel Parameters

Macro	Parameter Name	Type	Description
TS_ISO_PANSLOPE_0	"ISOPanSlope_0"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of panchromatic channel at typical sensor gains
TS_ISO_PANSLOPE_1	"ISOPanSlope_1"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of panchromatic channel at typical sensor gains
TS_ISO_PANSLOPE_2	"ISOPanSlope_2"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of panchromatic channel at typical sensor gains
TS_ISO_PANSLOPE_3	"ISOPanSlope_3"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of panchromatic channel at typical sensor gains

Macro	Parameter Name	Type	Description
TS_ISO_PANSLOPE_4	"ISOPanSlope_4"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of panchromatic channel at typical sensor gains
TS_ISO_PANINTERCEPT_0	"ISOPanSlope_0"	[float: DBL_MIN-DBL_MAX]	Noise variation intercept of panchromatic channel at typical sensor gains
TS_ISO_PANINTERCEPT_1	"ISOPanSlope_1"	[float: DBL_MIN-DBL_MAX]	Noise variation intercept of panchromatic channel at typical sensor gains
TS_ISO_PANINTERCEPT_2	"ISOPanSlope_2"	[float: DBL_MIN-DBL_MAX]	Noise variation intercept of panchromatic channel at typical sensor gains
TS_ISO_PANINTERCEPT_3	"ISOPanSlope_3"	[float: DBL_MIN-DBL_MAX]	Noise variation intercept of panchromatic channel at typical sensor gains
TS_ISO_PANINTERCEPT_4	"ISOPanSlope_4"	[float: DBL_MIN-DBL_MAX]	Noise variation intercept of panchromatic channel at typical sensor gains

4.40.2 Macro Definition Documentation

4.40.2.1 TS_ISO_PANSLOPE_0

```
#define TS_ISO_PANSLOPE_0 "ISOPanSlope_0"
```

Noise variation slope of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: ISO400_PanSlope = 0.31793097

4.40.2.2 TS_ISO_PANSLOPE_1

```
#define TS_ISO_PANSLOPE_1 "ISOPanSlope_1"
```

Noise variation slope of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: ISO800_PanSlope = 0.6009852

4.40.2.3 TS_ISO_PANSLOPE_2

```
#define TS_ISO_PANSLOPE_2 "ISOPanSlope_2"
```

Noise variation slope of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: IS↩O1600_PanSlope = 1.16587611

4.40.2.4 TS_ISO_PANSLOPE_3

```
#define TS_ISO_PANSLOPE_3 "ISOPanSlope_3"
```

Noise variation slope of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: IS↩O3200_PanSlope = 2.26059552

4.40.2.5 TS_ISO_PANSLOPE_4

```
#define TS_ISO_PANSLOPE_4 "ISOPanSlope_4"
```

Noise variation slope of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: IS↩O6400_PanSlope = 5.11044291

4.40.2.6 TS_ISO_PANINTERCEPT_0

```
#define TS_ISO_PANINTERCEPT_0 "ISOPanIntercept_0"
```

Noise variation intercept of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O400_PanIntercept = -25.07685652

4.40.2.7 TS_ISO_PANINTERCEPT_1

```
#define TS_ISO_PANINTERCEPT_1 "ISOPanIntercept_1"
```

Noise variation intercept of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O800_PanIntercept = 17.01752105

4.40.2.8 TS_ISO_PANINTERCEPT_2

```
#define TS_ISO_PANINTERCEPT_2 "ISOPanIntercept_2"
```

Noise variation intercept of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O1600_PanIntercept = 185.43026

4.40.2.9 TS_ISO_PANINTERCEPT_3

```
#define TS_ISO_PANINTERCEPT_3 "ISOPanIntercept_3"
```

Noise variation intercept of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O3200_PanIntercept = 831.07495077

4.40.2.10 TS_ISO_PANINTERCEPT_4

```
#define TS_ISO_PANINTERCEPT_4 "ISOPanIntercept_4"
```

Noise variation intercept of panchromatic channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

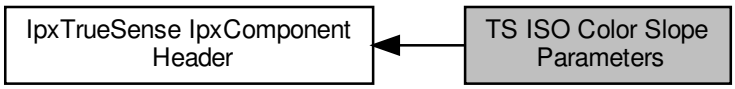
Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O6400_PanIntercept = 4154.73883603

4.41 TS ISO Color Slope Parameters

Defines for TS ISO Color Slope parameters.

Collaboration diagram for TS ISO Color Slope Parameters:



Macros

- #define TS_ISO_COLORSLOPE_0 "ISOColorSlope_0"
- #define TS_ISO_COLORSLOPE_1 "ISOColorSlope_1"
- #define TS_ISO_COLORSLOPE_2 "ISOColorSlope_2"
- #define TS_ISO_COLORSLOPE_3 "ISOColorSlope_3"
- #define TS_ISO_COLORSLOPE_4 "ISOColorSlope_4"

4.41.1 Detailed Description

Defines for TS ISO Color Slope parameters.

Table 4.81 TS ISO Color Slope Parameters

Macro	Parameter Name	Type	Description
TS_ISO_COLORSLOPE_0	"ISOColorSlope↩ _0"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of color channel at typical sensor gains
TS_ISO_COLORSLOPE_1	"ISOColorSlope↩ _1"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of color channel at typical sensor gains
TS_ISO_COLORSLOPE_2	"ISOColorSlope↩ _2"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of color channel at typical sensor gains
TS_ISO_COLORSLOPE_3	"ISOColorSlope↩ _3"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of color channel at typical sensor gains
TS_ISO_COLORSLOPE_4	"ISOColorSlope↩ _4"	[float: DBL_MIN-DBL_MAX]	Noise variation slope of color channel at typical sensor gains

4.41.2 Macro Definition Documentation

4.41.2.1 TS_ISO_COLORSLOPE_0

```
#define TS_ISO_COLORSLOPE_0 "ISOColorSlope_0"
```

Noise variation slope of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: ISO400↩ _ColorSlope = 0.16289523

4.41.2.2 TS_ISO_COLORSLOPE_1

```
#define TS_ISO_COLORSLOPE_1 "ISOColorSlope_1"
```

Noise variation slope of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: ISO800↩ _ColorSlope = 0.30242107

4.41.2.3 TS_ISO_COLORSLOPE_2

```
#define TS_ISO_COLORSLOPE_2 "ISOColorSlope_2"
```

Noise variation slope of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: IS↩ O1600_ColorSlope = 0.58180185

4.41.2.4 TS_ISO_COLORSLOPE_3

```
#define TS_ISO_COLORSLOPE_3 "ISOColorSlope_3"
```

Noise variation slope of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: IS↩ O3200_ColorSlope = 1.15281985

4.41.2.5 TS_ISO_COLORSLOPE_4

```
#define TS_ISO_COLORSLOPE_4 "ISOColorSlope_4"
```

Noise variation slope of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

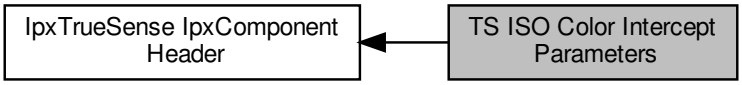
Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation slope. Ex: IS↩ O6400_ColorSlope = 2.53400236

4.42 TS ISO Color Intercept Parameters

Defines for TS ISO Color Intercept parameters.

Collaboration diagram for TS ISO Color Intercept Parameters:



Macros

- #define TS_ISO_COLORINTERCEPT_0 "ISOColorIntercept_0"
- #define TS_ISO_COLORINTERCEPT_1 "ISOColorIntercept_1"
- #define TS_ISO_COLORINTERCEPT_2 "ISOColorIntercept_2"
- #define TS_ISO_COLORINTERCEPT_3 "ISOColorIntercept_3"
- #define TS_ISO_COLORINTERCEPT_4 "ISOColorIntercept_4"

4.42.1 Detailed Description

Defines for TS ISO Color Intercept parameters.

Table 4.82 TS ISO Color Intercept Parameters

Macro	Parameter Name	Type	Description
TS_ISO_COLORINTER↩ CEPT_0	"ISOColorIntercept↩ _0"	[float: DBL_MIN-DBL_M↩ AX]	Noise variation intercept of color channel at typical sensor gains
TS_ISO_COLORINTER↩ CEPT_1	"ISOColorIntercept↩ _1"	[float: DBL_MIN-DBL_M↩ AX]	Noise variation intercept of color channel at typical sensor gains
TS_ISO_COLORINTER↩ CEPT_2	"ISOColorIntercept↩ _2"	[float: DBL_MIN-DBL_M↩ AX]	Noise variation intercept of color channel at typical sensor gains
TS_ISO_COLORINTER↩ CEPT_3	"ISOColorIntercept↩ _3"	[float: DBL_MIN-DBL_M↩ AX]	Noise variation intercept of color channel at typical sensor gains
TS_ISO_COLORINTER↩ CEPT_4	"ISOColorIntercept↩ _4"	[float: DBL_MIN-DBL_M↩ AX]	Noise variation intercept of color channel at typical sensor gains

4.42.2 Macro Definition Documentation

4.42.2.1 TS_ISO_COLORINTERCEPT_0

```
#define TS_ISO_COLORINTERCEPT_0 "ISOColorIntercept_0"
```

Noise variation intercept of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O400_ColorIntercept = -2.97408598

4.42.2.2 TS_ISO_COLORINTERCEPT_1

```
#define TS_ISO_COLORINTERCEPT_1 "ISOColorIntercept_1"
```

Noise variation intercept of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O800_ColorIntercept = 15.97559859

4.42.2.3 TS_ISO_COLORINTERCEPT_2

```
#define TS_ISO_COLORINTERCEPT_2 "ISOColorIntercept_2"
```

Noise variation intercept of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O1600_ColorIntercept = 92.84640595

4.42.2.4 TS_ISO_COLORINTERCEPT_3

```
#define TS_ISO_COLORINTERCEPT_3 "ISOColorIntercept_3"
```

Noise variation intercept of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O3200_ColorIntercept = 399.49923562

4.42.2.5 TS_ISO_COLORINTERCEPT_4

```
#define TS_ISO_COLORINTERCEPT_4 "ISOColorIntercept_4"
```

Noise variation intercept of color channel at typical sensor gains

Type/Range [float: DBL_MIN-DBL_MAX]

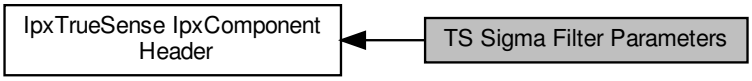
Note

Used by SetParamFloat and GetParamFloat, used to interpolate intermediate noise variation intercept. Ex: IS↩O6400_ColorIntercept = 2080.24259272

4.43 TS Sigma Filter Parameters

Defines for TS Sigma Filter parameters.

Collaboration diagram for TS Sigma Filter Parameters:



Macros

- #define TS_PAN_RADIUS0 "panRadius0"
- #define TS_PAN_RADIUS1 "panRadius1"
- #define TS_PAN_RADIUS2 "panRadius2"
- #define TS_PAN_SIGMA0 "panSigma0"
- #define TS_PAN_SIGMA1 "panSigma1"
- #define TS_PAN_SIGMA2 "panSigma2"
- #define TS_COLOR_RADIUS0 "colorRadius0"
- #define TS_COLOR_RADIUS1 "colorRadius1"
- #define TS_COLOR_RADIUS2 "colorRadius2"
- #define TS_COLOR_SIGMA0 "colorSigma0"
- #define TS_COLOR_SIGMA1 "colorSigma1"
- #define TS_COLOR_SIGMA2 "colorSigma2"

4.43.1 Detailed Description

Defines for TS Sigma Filter parameters.

Table 4.83 TS Sigma Filter Parameters

Macro	Parameter Name	Type	Description
TS_PAN_RADIUS0	"panRadius0"	[float: DBL_MIN-DBL_MAX]	Pixel radius for the sigma filter of first round panchromatic channel noise cleaning
TS_PAN_RADIUS1	"panRadius1"	[float: DBL_MIN-DBL_MAX]	Pixel radius for the sigma filter of second round panchromatic channel noise cleaning
TS_PAN_RADIUS2	"panRadius2"	[float: DBL_MIN-DBL_MAX]	Pixel radius for the sigma filter of third round panchromatic channel noise cleaning

Macro	Parameter Name	Type	Description
TS_PAN_SIGMA0	"panSigma0"	[float: DBL_MIN-DBL_MAX]	Scalar for the sigma filter of first round panchromatic channel noise cleaning
TS_PAN_SIGMA1	"panSigma1"	[float: DBL_MIN-DBL_MAX]	Scalar for the sigma filter of second round panchromatic channel noise cleaning
TS_PAN_SIGMA2	"panSigma2"	[float: DBL_MIN-DBL_MAX]	Scalar for the sigma filter of third round panchromatic channel noise cleaning
TS_COLOR_RADIUS0	"colorRadius0"	[float: DBL_MIN-DBL_MAX]	Pixel radius for the sigma filter of first round color channel noise cleaning
TS_COLOR_RADIUS1	"colorRadius1"	[float: DBL_MIN-DBL_MAX]	Pixel radius for the sigma filter of second round color channel noise cleaning
TS_COLOR_RADIUS2	"colorRadius2"	[float: DBL_MIN-DBL_MAX]	Pixel radius for the sigma filter of third round color channel noise cleaning
TS_COLOR_SIGMA0	"colorSigma0"	[float: DBL_MIN-DBL_MAX]	Scalar for the sigma filter of first round color channel noise cleaning
TS_COLOR_SIGMA1	"colorSigma1"	[float: DBL_MIN-DBL_MAX]	Scalar for the sigma filter of second round color channel noise cleaning
TS_COLOR_SIGMA2	"colorSigma2"	[float: DBL_MIN-DBL_MAX]	Scalar for the sigma filter of third round color channel noise cleaning

4.43.2 Macro Definition Documentation

4.43.2.1 TS_PAN_RADIUS0

```
#define TS_PAN_RADIUS0 "panRadius0"
```

Pixel radius for the sigma filter of first round panchromatic channel noise cleaning, 0 means bypass current round cleaning.

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.2 TS_PAN_RADIUS1

```
#define TS_PAN_RADIUS1 "panRadius1"
```

Pixel radius for the sigma filter of second round panchromatic channel noise cleaning, 0 means bypass current round cleaning.

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.3 TS_PAN_RADIUS2

```
#define TS_PAN_RADIUS2 "panRadius2"
```

Pixel radius for the sigma filter of third round panchromatic channel noise cleaning, 0 means bypass current round cleaning.

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.4 TS_PAN_SIGMA0

```
#define TS_PAN_SIGMA0 "panSigma0"
```

Scalar for the sigma filter of first round panchromatic channel noise cleaning

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.5 TS_PAN_SIGMA1

```
#define TS_PAN_SIGMA1 "panSigma1"
```

Scalar for the sigma filter of second round panchromatic channel noise cleaning

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.6 TS_PAN_SIGMA2

```
#define TS_PAN_SIGMA2 "panSigma2"
```

Scalar for the sigma filter of third round panchromatic channel noise cleaning

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.7 TS_COLOR_RADIUS0

```
#define TS_COLOR_RADIUS0 "colorRadius0"
```

Pixel radius for the sigma filter of first round color channel noise cleaning, 0 means bypass current round cleaning.

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.8 TS_COLOR_RADIUS1

```
#define TS_COLOR_RADIUS1 "colorRadius1"
```

Pixel radius for the sigma filter of second round color channel noise cleaning, 0 means bypass current round cleaning.

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.9 TS_COLOR_RADIUS2

```
#define TS_COLOR_RADIUS2 "colorRadius2"
```

Pixel radius for the sigma filter of third round color channel noise cleaning, 0 means bypass current round cleaning.

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.10 TS_COLOR_SIGMA0

```
#define TS_COLOR_SIGMA0 "colorSigma0"
```

Scalar for the sigma filter of first round color channel noise cleaning

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.11 TS_COLOR_SIGMA1

```
#define TS_COLOR_SIGMA1 "colorSigma1"
```

Scalar for the sigma filter of second round color channel noise cleaning

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.43.2.12 TS_COLOR_SIGMA2

```
#define TS_COLOR_SIGMA2 "colorSigma2"
```

Scalar for the sigma filter of third round color channel noise cleaning

Type/Range [float: DBL_MIN-DBL_MAX]

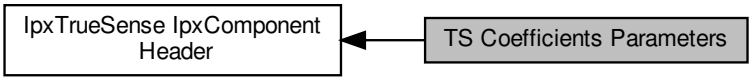
Note

Used by SetParamFloat and GetParamFloat

4.44 TS Coefficients Parameters

Defines for TS Coefficients parameters.

Collaboration diagram for TS Coefficients Parameters:



Macros

- #define TS_RR_COEFF "RR"
- #define TS_RG_COEFF "RG"
- #define TS_RB_COEFF "RB"
- #define TS_GR_COEFF "GR"
- #define TS_GG_COEFF "GG"
- #define TS_GB_COEFF "GB"
- #define TS_BR_COEFF "BR"
- #define TS_BG_COEFF "BG"
- #define TS_BB_COEFF "BB"

4.44.1 Detailed Description

Defines for TS Coefficients parameters.

Table 4.84 TS Coefficients Parameters

Macro	Parameter Name	Type	Description
TS_RR_COEFF	"RR"	[float: DBL_MIN-DBL_MAX]	Red-red coefficient of color correction matrix
TS_RG_COEFF	"RG"	[float: DBL_MIN-DBL_MAX]	Red-green coefficient of color correction matrix
TS_RB_COEFF	"RB"	[float: DBL_MIN-DBL_MAX]	Red-blue coefficient of color correction matrix
TS_GR_COEFF	"GR"	[float: DBL_MIN-DBL_MAX]	Green-red coefficient of color correction matrix
TS_GG_COEFF	"GG"	[float: DBL_MIN-DBL_MAX]	Green-green coefficient of color correction matrix
TS_GB_COEFF	"GB"	[float: DBL_MIN-DBL_MAX]	Green-blue coefficient of color correction matrix
TS_BR_COEFF	"BR"	[float: DBL_MIN-DBL_MAX]	Blue-red coefficient of color correction matrix
TS_BG_COEFF	"BG"	[float: DBL_MIN-DBL_MAX]	Blue-green coefficient of color correction matrix
TS_BB_COEFF	"BB"	[float: DBL_MIN-DBL_MAX]	blue-blue coefficient of color correction matrix

4.44.2 Macro Definition Documentation

4.44.2.1 TS_RR_COEFF

```
#define TS_RR_COEFF "RR"
```

Red-red coefficient of color correction matrix

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, Example: 1.657

4.44.2.2 TS_RG_COEFF

```
#define TS_RG_COEFF "RG"
```

Red-green coefficient of color correction matrix

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, Example: -0.5325

4.44.2.3 TS_RB_COEFF

```
#define TS_RB_COEFF "RB"
```

Red-blue coefficient of color correction matrix

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, Example: -0.1245

4.44.2.4 TS_GR_COEFF

```
#define TS_GR_COEFF "GR"
```

Green-red coefficient of color correction matrix

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, Example: -0.106

4.44.2.5 TS_GG_COEFF

```
#define TS_GG_COEFF "GG"
```

Green-green coefficient of color correction matrix

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, Example: 1.443

4.44.2.6 TS_GB_COEFF

```
#define TS_GB_COEFF "GB"
```

Green-blue coefficient of color correction matrix

Type/**Range** [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, Example: -0.337

4.44.2.7 TS_BR_COEFF

```
#define TS_BR_COEFF "BR"
```

Blue-red coefficient of color correction matrix

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, Example: 0.131

4.44.2.8 TS_BG_COEFF

```
#define TS_BG_COEFF "BG"
```

Blue-green coefficient of color correction matrix

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat, Example: -0.445

4.44.2.9 TS_BB_COEFF

```
#define TS_BB_COEFF "BB"
```

Blue-blue coefficient of color correction matrix

Type/Range [float: DBL_MIN-DBL_MAX]

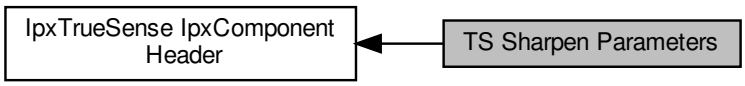
Note

Used by SetParamFloat and GetParamFloat, Example: 1.314

4.45 TS Sharpen Parameters

Defines for TS Sharpen parameters.

Collaboration diagram for TS Sharpen Parameters:



Macros

- #define TS_SHARPEN_PARAM "sharpenParam"
- #define TS_MAX_SHARPEN "maxSharpen"

4.45.1 Detailed Description

Defines for TS Sharpen parameters.

Table 4.85 TS Sharpen Parameters

Macro	Parameter Name	Type	Description
TS_SHARPEN_PARAM	"sharpenParam"	[float: DBL_MIN-DBL_MAX]	Sharp parameter
TS_MAX_SHARPEN	"maxSharpen"	[float: DBL_MIN-DBL_MAX]	Sharp maximal threshold

4.45.2 Macro Definition Documentation

4.45.2.1 TS_SHARPEN_PARAM

```
#define TS_SHARPEN_PARAM "sharpenParam"
```

Sharp parameter

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.45.2.2 TS_MAX_SHARPEN

```
#define TS_MAX_SHARPEN "maxSharpen"
```

Sharp maximal threshold

Type/**Range** [float: DBL_MIN-DBL_MAX]

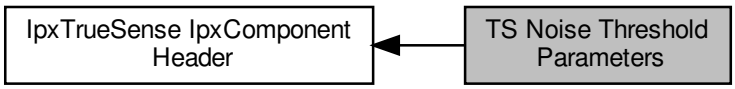
Note

Used by SetParamFloat and GetParamFloat

4.46 TS Noise Threshold Parameters

Defines for TS Noise Threshold parameters.

Collaboration diagram for TS Noise Threshold Parameters:



Macros

- #define TS_HIGH_LUMA_NOISE "highLumaNoise"
- #define TS_LOW_LUMA_NOISE "lowLumaNoise"

4.46.1 Detailed Description

Defines for TS Noise Threshold parameters.

Table 4.86 TS Noise Threshold Parameters

Macro	Parameter Name	Type	Description
TS_SHARPEN_PARAM	"highLumaNoise"	[float: DBL_MIN-DBL_MAX]	High Noise threshold
TS_MAX_SHARPEN	"lowLumaNoise""	[float: DBL_MIN-DBL_MAX]	Low Noise threshold

4.46.2 Macro Definition Documentation

4.46.2.1 TS_HIGH_LUMA_NOISE

```
#define TS_HIGH_LUMA_NOISE "highLumaNoise"
```

High Noise threshold

Type/Range [float: DBL_MIN-DBL_MAX]

Note

Used by SetParamFloat and GetParamFloat

4.46.2.2 TS_LOW_LUMA_NOISE

```
#define TS_LOW_LUMA_NOISE "lowLumaNoise"
```

Low Noise threshold

Type/**Range** [float: DBL_MIN-DBL_MAX]

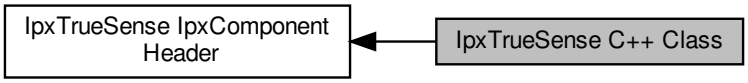
Note

Used by SetParamFloat and GetParamFloat

4.47 IpxTrueSense C++ Class

C++ Class for IpxTrueSense.

Collaboration diagram for IpxTrueSense C++ Class:



Classes

- class IpxTrueSense

  A Class for IpxTrueSense modules that contains methods to convert IpxImage images.

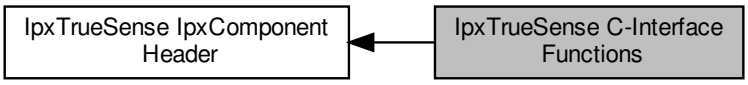
4.47.1 Detailed Description

C++ Class for IpxTrueSense.

4.48 IpxTrueSense C-Interface Functions

C-interface functions for IpxTrueSense.

Collaboration diagram for IpxTrueSense C-Interface Functions:



Functions

- TS_EXTERN_C TS_API IpxHandle TS_CALL IpxTrueSense_CreateComponent ()

  This C-interface function returns the IpxHandle for the created IpxIrueSense instance.
- TS_EXTERN_C TS_API void TS_CALL IpxTrueSense_DeleteComponent (IpxHandle hTrueSense)

  This C-interface function deletes the IpxHandle hTrueSense component and all associated resources obtained by the IpxTrueSense object.
- TS_EXTERN_C TS_API IpxHandle TS_CALL IpxTrueSense_GetComponent (IpxHandle hTrueSense)

  This C-interface function returns the IpxHandle for the IpxTrueSense component.
- TS_EXTERN_C TS_API IpxError TS_CALL IpxTrueSense_ConvertImage (IpxHandle hTrueSense, const IpxImage ∗pSrc, IpxImage ∗pDst)

  This C-interface function converts the input source IpxImage to the targeted output destination.
- TS_EXTERN_C TS_API IpxError TS_CALL IpxTrueSense_AllocData (IpxHandle hTrueSense, const IpxImage ∗pSrc, IpxImage ∗pDst)

  This C-interface function allocates the data.
- TS_EXTERN_C TS_API void TS_CALL IpxTrueSense_ReleaseData (IpxHandle hTrueSense)

  This C-interface function release the IpxHandle to the IpxTrueSense data.

4.48.1 Detailed Description

C-interface functions for IpxTrueSense.

4.48.2 Function Documentation

4.48.2.1 IpxTrueSense_CreateComponent()

```
TS_EXTERN_C TS_API IpxHandle TS_CALL IpxTrueSense_CreateComponent ( )
```

This C-interface function returns the IpxHandle for the created IpxIrueSense instance.

Returns

Returns the IpxHandle for the created IpxTrueSense objectThis C-interface function returns the IpxHandle for the created IpxTrueSense instance
Returns the IpxHandle for the created IpxTrueSense object

4.48.2.2 IpxTrueSense_DeleteComponent()

```
TS_EXTERN_C TS_API void TS_CALL IpxTrueSense_DeleteComponent (
             IpxHandle hTrueSense )
```

This C-interface function deletes the IpxHandle hTrueSense component and all associated resources obtained by the IpxTrueSense object.

Parameters

in	*hTrueSense*	Pointer to the IpxHandle for the IpxTrueSense instance

Returns

void

4.48.2.3 IpxTrueSense_GetComponent()

```
TS_EXTERN_C TS_API IpxHandle TS_CALL IpxTrueSense_GetComponent (
             IpxHandle hTrueSense )
```

This C-interface function returns the IpxHandle for the IpxTrueSense component.

Parameters

in	*hTrueSense*	Pointer to the IpxHandle for the IpxTrueSense object

Returns

Returns the IpxHandle for the IpxTrueSense component

4.48.2.4 IpxTrueSense_ConvertImage()

```
TS_EXTERN_C TS_API IpxError TS_CALL IpxTrueSense_ConvertImage (
            IpxHandle hTrueSense,
            const IpxImage * pSrc,
            IpxImage * pDst )
```

This C-interface function converts the input source IpxImage to the targeted output destination.

Parameters

in	*hTrueSense*	Pointer to the IpxHandle for the IpxTrueSense Component
in	*pSrc*	Pointer to the source IpxImage
out	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- IPX_ERR_OK Successfully converts the source IpxImage to the targeted output destination IpxImage
- If IpxError error code $<$ 0, then it returns a negative error code indicating problems converting the IpxImage

4.48.2.5 IpxTrueSense_AllocData()

```
TS_EXTERN_C TS_API IpxError TS_CALL IpxTrueSense_AllocData (
            IpxHandle hTrueSense,
            const IpxImage * pSrc,
            IpxImage * pDst )
```

This C-interface function allocates the data.

Parameters

in	*hTrueSense*	Pointer of the IpxHandle for the IpxTrueSense Component
in	*pSrc*	Pointer to the source IpxImage
in	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully allocates the IpxImage data.
- `If` IpxError error code < 0, then it returns a negative error code indicating problems allocating IpxImage data

4.48.2.6 IpxTrueSense_ReleaseData()

```
TS_EXTERN_C TS_API void TS_CALL IpxTrueSense_ReleaseData (
            IpxHandle hTrueSense )
```

This C-interface function release the IpxHandle to the IpxTrueSense data.

Parameters

`in`	*hTrueSense*	Pointer of the IpxHandle for the IpxTrueSense data

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully releases the IpxTrueSense data.
- `If` IpxError error code < 0, then it returns a negative error code indicating problems releasing the IpxTrue↩Sense data

Chapter 5

Class Documentation

5.1 IpxBayer Class Reference

A Class for IpxBayer modules that contains methods to convert Bayer CFA (Color Filter Array) images.

`#include <IpxBayer.h>`

Public Member Functions

- virtual IpxComponent * GetComponent ()=0

  This function returns the pointer to the IpxComponent object.
- virtual IpxError ConvertImage (const IpxImage *pSrc, IpxImage *pDst)=0

  This function Bayer CFA (Color Filter Array) Demosaicing converts the input source IpxImage to the targeted output destination IpxImage.
- virtual IpxError AllocData (const IpxImage *pSrc, IpxImage *pDst)=0

  This function allocates memory.
- virtual void ReleaseData ()=0

  This function releases the allocated memory.

Static Public Member Functions

- static BAYER_API IpxBayer * CreateComponent ()

  This function returns the created IpxBayer instance.
- static BAYER_API void DeleteComponent (IpxBayer *in)

  This function deletes the IpxBayer component and all associated resources obtained by the IpxBayer object.

5.1.1 Detailed Description

A Class for IpxBayer modules that contains methods to convert Bayer CFA (Color Filter Array) images.

A class containing methods for IpxBayer modules.

5.1.2 Member Function Documentation

5.1.2.1 CreateComponent()

```
static BAYER_API IpxBayer* IpxBayer::CreateComponent ( )  [static]
```

This function returns the created IpxBayer instance.

Returns

Returns the created IpxBayer object

5.1.2.2 DeleteComponent()

```
static BAYER_API void IpxBayer::DeleteComponent (
            IpxBayer * in )  [static]
```

This function deletes the IpxBayer component and all associated resources obtained by the IpxBayer object.

Parameters

in	*in*	Pointer to the IpxBayer object

Returns

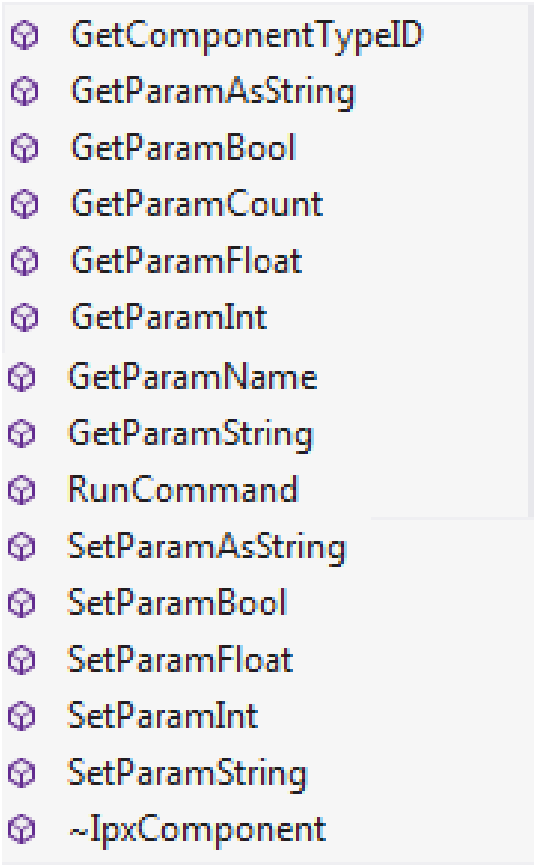
Returns void

5.1.2.3 GetComponent()

```
virtual IpxComponent* IpxBayer::GetComponent ( )  [pure virtual]
```

This function returns the pointer to the IpxComponent object.

The IpxComponent object will give access to the data member functions shown below:



Returns

Returns the Pointer to the IpxComponent object

The following example will illustrate on how to access the IpxComponent data member function:

```
//Create the IpxBayer Component
IpxBayer *pDeBayer = IpxBayer::CreateComponent();

//Access the set parameter data member function using the GetComponent function.
//Set the "BayerAlgType" parameter to '2'.
pDeBayer->GetComponent()->SetParamInt("BayerAlgType", 2);
```

5.1.2.4 ConvertImage()

```
virtual IpxError IpxBayer::ConvertImage (
            const IpxImage * pSrc,
            IpxImage * pDst )  [pure virtual]
```

This function Bayer CFA (Color Filter Array) Demosaicing converts the input source IpxImage to the targeted output destination IpxImage.

Parameters

in	*pSrc*	Pointer to the input source IpxImage

The only input source Pixel Types supported are shown below:

Table 5.3 Input Source Supported Types

Pixel Types
II_PIX_BAYGR8
II_PIX_BAYGR10
II_PIX_BAYGR12
II_PIX_BAYGR14
II_PIX_BAYGR16
II_PIX_BAYRG8
II_PIX_BAYRG10
II_PIX_BAYRG12
II_PIX_BAYRG14
II_PIX_BAYRG16
II_PIX_BAYBG8
II_PIX_BAYBG10
II_PIX_BAYBG12
II_PIX_BAYBG14
II_PIX_BAYBG16
II_PIX_BAYGB8
II_PIX_BAYGB10
II_PIX_BAYGB12
II_PIX_BAYGB14
II_PIX_BAYGB16

Figure 5.1 Example of a Bayer Conversion Process

Parameters

out	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- IPX_ERR_OK Successfully converts the source IpxImage to the targeted output destination IpxImage
- If IpxError error code < 0, then it returns a negative error code indicating problems converting the IpxImage

5.1.2.5 AllocData()

```
virtual IpxError IpxBayer::AllocData (
            const IpxImage * pSrc,
            IpxImage * pDst )  [pure virtual]
```

This function allocates memory.

Parameters

in	*pSrc*	Pointer to the input source IpxImage
in	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- IPX_ERR_OK Successfully allocates data
- If IpxError error code < 0, then it returns a negative error code indicating problem allocating memory

5.1.2.6 ReleaseData()

```
virtual void IpxBayer::ReleaseData ( )  [pure virtual]
```

This function releases the allocated memory.

Returns

Returns the error code:

- IPX_ERR_OK Successfully releases the allocated data
- If IpxError error code < 0, then it returns a negative error code indicating problem releasing the data allocated

The documentation for this class was generated from the following file:

- IpxBayer.h

5.2 IpxComponent Class Reference

A Class for IpxComponent modules that contains methods for setting/getting/executing Component features.

`#include <IpxToolsBase.h>`

Public Member Functions

- virtual ~IpxComponent ()

  This function releases the resources obtained by the IpxComponent object.
- virtual uint8_t GetComponentTypeID ()=0

  This function returns the component type ID.
- virtual size_t GetParamCount ()=0

  This function returns the parameter count of the IpxComponent.
- virtual IpxError GetParamName (uint32_t index, char *name, uint32_t *size)=0

  This function returns the parameter name associated with the index.
- virtual IpxError GetParamAsString (const char *name, char *param, uint32_t *size, const char *format=nullptr)=0

  This function gets the requested data information for the corresponding parameter name. This output information is a 'char' type variable.
- virtual IpxError SetParamAsString (const char *name, char *param)=0

  This function sets the named parameter with the parameter data information. The parameter data information is a 'char' type variable.
- virtual IpxError SetParamBool (const char *name, bool param)=0

  This function sets the named bool parameter with the bool parameter data information. The parameter data information is a 'boolean' type variable.
- virtual IpxError SetParamInt (const char *name, int64_t param)=0

  This function sets the named integer parameter with the parameter data information. The parameter data information is a 'int64_t' type variable.
- virtual IpxError SetParamFloat (const char *name, double param)=0

  This function sets the named float parameter with the parameter data information. The parameter data information is a 'double' type variable.
- virtual IpxError SetParamString (const char *name, char *param)=0

  This function sets the named string parameter with the parameter data information. The parameter data information is in char string format.
- virtual IpxError SetParamArray (const char *name, void *param, uint32_t size)=0

  This function sets the named array parameter with the parameter data information. The parameter data information is pointer to memory buffer.
- virtual IpxError GetParamBool (const char *name, bool *param)=0

  This function retrieves the bool parameter data information for the specified named parameter.
- virtual IpxError GetParamInt (const char *name, int64_t *param)=0

  This function retrieves the integer parameter data information for the specified named parameter.
- virtual IpxError GetParamFloat (const char *name, double *param)=0

  This function retrieves the float parameter data information for the specified named parameter.
- virtual IpxError GetParamString (const char *name, char *param, uint32_t *size)=0

  This function retrieves the string parameter data information for the specified named parameter.
- virtual IpxError GetParamArray (const char *name, void *param, uint32_t *size)=0

  This function retrieves the string parameter data information for the specified named parameter.
- virtual IpxError RunCommand (const char *name)=0

  This function runs the command parameter specified.

5.2.1 Detailed Description

A Class for IpxComponent modules that contains methods for setting/getting/executing Component features.

A class containing methods for IpxComponent modules.

5.2.2 Constructor & Destructor Documentation

5.2.2.1 ~IpxComponent()

```
virtual IpxComponent::~IpxComponent ( )  [inline], [virtual]
```

This function releases the resources obtained by the IpxComponent object.

Returns

Destructor of IpxComponent

5.2.3 Member Function Documentation

5.2.3.1 GetComponentTypeID()

```
virtual uint8_t IpxComponent::GetComponentTypeID ( )  [pure virtual]
```

This function returns the component type ID.

Returns

This function returns the component type ID.

5.2.3.2 GetParamCount()

```
virtual size_t IpxComponent::GetParamCount ( )  [pure virtual]
```

This function returns the parameter count of the IpxComponent.

Returns

Returns the parameter count

5.2.3.3 GetParamName()

```
virtual IpxError IpxComponent::GetParamName (
            uint32_t index,
            char * name,
            uint32_t * size )  [pure virtual]
```

This function returns the parameter name associated with the index.

Parameters

in	*index*	Parameter index
out	*name*	Name of parameter
in	*size*	input size

Returns

Returns the error code:

- IPX_ERR_OK Successfully gets the name of the parameter of the specified index
- If IpxError error code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.4 GetParamAsString()

```
virtual IpxError IpxComponent::GetParamAsString (
            const char * name,
            char * param,
            uint32_t * size,
            const char * format = nullptr )  [pure virtual]
```

This function gets the requested data information for the corresponding parameter name. This output information is a 'char' type variable.

Parameters

in	*name*	Parameter name
out	*param*	Name of parameter value that was requested and returned in a char string format.
in	*size*	Input size
in	*format*	Format of Int to String conversion (default is "%" PRIi64)

Returns

Returns the error code:

- IPX_ERR_OK Successfully gets the name parameter requested data information of the specified index
- If IpxError code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.5 SetParamAsString()

```
virtual IpxError IpxComponent::SetParamAsString (
            const char * name,
            char * param )  [pure virtual]
```

This function sets the named parameter with the parameter data information. The parameter data information is a 'char' type variable.

Parameters

in	*name*	Parameter name
in	*param*	Parameter value that is being set. The parameter data information is in a char string format.

Returns

Returns the error code:

- IPX_ERR_OK Successfully sets the name parameter requested data information specified
- If IpxError code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.6 SetParamBool()

```
virtual IpxError IpxComponent::SetParamBool (
            const char * name,
            bool param )  [pure virtual]
```

This function sets the named bool parameter with the bool parameter data information. The parameter data information is a 'boolean' type variable.

Parameters

in	*name*	Parameter name
in	*param*	Parameter value that is being set. The parameter data information is a 'boolean' type variable.

Returns

Returns the error code:

- IPX_ERR_OK Successfully sets the name parameter requested data information specified
- If IpxError code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.7 SetParamInt()

```
virtual IpxError IpxComponent::SetParamInt (
            const char * name,
            int64_t param )  [pure virtual]
```

This function sets the named integer parameter with the parameter data information. The parameter data information is a 'int64_t' type variable.

Parameters

in	*name*	Parameter name
in	*param*	Parameter value that is being set. The parameter data information is a 'int64_t' type variable.

Returns

Returns the error code:

- IPX_ERR_OK Successfully sets the name parameter requested data information specified
- If IpxError code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.8 SetParamFloat()

```
virtual IpxError IpxComponent::SetParamFloat (
            const char * name,
            double param )  [pure virtual]
```

This function sets the named float parameter with the parameter data information. The parameter data information is a 'double' type variable.

Parameters

in	*name*	Parameter name
in	*param*	Parameter value that is being set. The parameter data information is a 'double' type variable.

Returns

Returns the error code:

- IPX_ERR_OK Successfully sets the name parameter requested data information specified
- If IpxError code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.9 SetParamString()

```
virtual IpxError IpxComponent::SetParamString (
            const char * name,
            char * param )  [pure virtual]
```

This function sets the named string parameter with the parameter data information. The parameter data information is in char string format.

Parameters

in	*name*	Parameter name
in	*param*	Parameter value that is being set. The parameter data information is in a char string format.

Returns

Returns the error code:

- IPX_ERR_OK Successfully sets the name parameter requested data information specified
- If IpxError code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.10 SetParamArray()

```
virtual IpxError IpxComponent::SetParamArray (
            const char * name,
            void * param,
            uint32_t size )  [pure virtual]
```

This function sets the named array parameter with the parameter data information. The parameter data information is pointer to memory buffer.

Parameters

in	*name*	Parameter name
in	*param*	Parameter value that is being set. The parameter is pointer to memory buffer.
in	*size*	Size of the memory buffer, specified in param argument, in bytes.

Returns

Returns the error code:

- IPX_ERR_OK Successfully sets the name parameter requested data information specified
- If IpxError code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.11 GetParamBool()

```
virtual IpxError IpxComponent::GetParamBool (
            const char * name,
            bool * param )  [pure virtual]
```

This function retrieves the bool parameter data information for the specified named parameter.

Parameters

in	*name*	Name of parameter
out	*param*	retrieves the bool parameter data information

Returns

Returns the error code:

- IPX_ERR_OK Successfully gets the named bool parameter data information
- If IpxError error code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.12 GetParamInt()

```
virtual IpxError IpxComponent::GetParamInt (
            const char * name,
            int64_t * param )  [pure virtual]
```

This function retrieves the integer parameter data information for the specified named parameter.

Parameters

in	*name*	Name of parameter
out	*param*	retrieves the integer parameter data information

Returns

Returns the error code:

- IPX_ERR_OK Successfully gets the named integer parameter data information
- If IpxError error code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.13 GetParamFloat()

```
virtual IpxError IpxComponent::GetParamFloat (
            const char * name,
            double * param )  [pure virtual]
```

This function retrieves the float parameter data information for the specified named parameter.

Parameters

in	*name*	Name of parameter
out	*param*	retrieves the float parameter data information

Returns

Returns the error code:

- IPX_ERR_OK Successfully gets the named float parameter data information
- If IpxError error code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.14 GetParamString()

```
virtual IpxError IpxComponent::GetParamString (
            const char * name,
            char * param,
            uint32_t * size )  [pure virtual]
```

This function retrieves the string parameter data information for the specified named parameter.

Parameters

in	*name*	Name of parameter
out	*param*	retrieves the string parameter data information
in	*size*	Size of param string being retrieved.

Returns

Returns the error code:

- IPX_ERR_OK Successfully gets the named string parameter data information
- If IpxError error code $<$ 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.15 GetParamArray()

```
virtual IpxError IpxComponent::GetParamArray (
            const char * name,
            void * param,
            uint32_t * size )  [pure virtual]
```

This function retrieves the string parameter data information for the specified named parameter.

Parameters

in	*name*	Name of parameter
out	*param*	Pointer to memory buffer for parameter data information
in	*size*	Size of the memory buffer being retrieved, in bytes

Returns

Returns the error code:

- IPX_ERR_OK Successfully gets the named string parameter data information
- If IpxError error code < 0, then it returns a negative error code indicating the named parameter was not found

5.2.3.16 RunCommand()

```
virtual IpxError IpxComponent::RunCommand (
            const char * name )  [pure virtual]
```

This function runs the command parameter specified.

Parameters

in	*name*	Name of parameter

Returns

Returns the error code:

- IPX_ERR_OK Successfully runs the command parameter specified
- If IpxError error code < 0, then it returns a negative error code indicating the named parameter was not found

The documentation for this class was generated from the following file:

- IpxToolsBase.h

5.3 IpxDisplay Class Reference

A Class for IpxDisplay modules that contains methods to display IpxImage images. This class is responsible for displaying video frames and still images.

```
#include <IpxDisplay.h>
```

Public Member Functions

- virtual IpxComponent * GetComponent ()=0

  This function returns the pointer to the IpxComponent object. [QT: yes].
- virtual bool GetSystemInfo (char *buffer, int32_t bufferSz, const char *separator="; ")=0

  This function returns GPU information as text.
- virtual IpxError Initialize (void *displayWindow, const char *mode="auto", IpxImage *imageParams=0)=0

  This function initializes the display library for playing videos/still images with the specified mode and image parameters.
- virtual IpxError SetVideoMode (IpxImage *imageParams, const char *mode="auto")=0
- virtual IpxError DisplayVideo (IpxImage *image)=0

  This function displays the video frame. [QT: yes].
- virtual IpxError DisplayImage (IpxImage *image, const char *mode="auto")=0

  This function displays the still image. [QT: no].
- virtual IpxError ConvertImage (IpxImage *source, IpxImage *output)=0

  This function converts the source image to the specified output image. [QT: no].
- virtual IpxError Translate (int32_t *x, int32_t *y, int32_t flags)

  This function translates the display object to the specified coordinates as indicated by the flag. [QT: yes].

Static Public Member Functions

- static IPXD_API IpxDisplay * CreateComponent ()

  This function creates a IpxComponent and returns the created IpxDisplay instance [QT: yes].
- static IPXD_API void DeleteComponent (IpxDisplay *component)

  This function deletes the IpxDisplay component and all associated resources obtained by the IpxDisplay object. [QT: yes].

5.3.1 Detailed Description

A Class for IpxDisplay modules that contains methods to display IpxImage images. This class is responsible for displaying video frames and still images.

A class containing methods for IpxDisplay modules.

5.3.2 Member Function Documentation

5.3.2.1 CreateComponent()

```
static IPXD_API IpxDisplay* IpxDisplay::CreateComponent ( )  [static]
```

This function creates a IpxComponent and returns the created IpxDisplay instance [QT: yes].

Returns

Returns the created IpxDisplay object

5.3.2.2 DeleteComponent()

```
static IPXD_API void IpxDisplay::DeleteComponent (
            IpxDisplay * component )  [static]
```

This function deletes the IpxDisplay component and all associated resources obtained by the IpxDisplay object. [QT: yes].

Parameters

in	*component*	Pointer to the IpxDisplay object

Returns

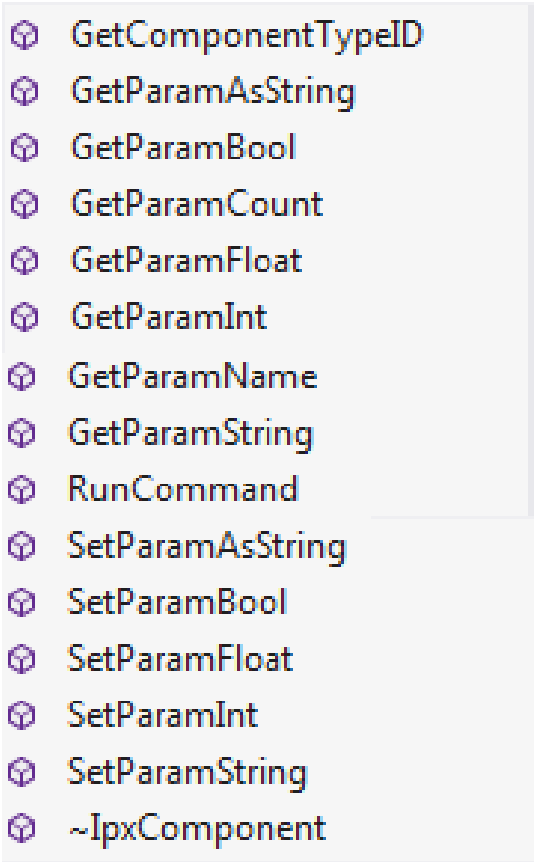
Returns void

5.3.2.3 GetComponent()

```
virtual IpxComponent* IpxDisplay::GetComponent ( )  [pure virtual]
```

This function returns the pointer to the IpxComponent object. [QT: yes].

The IpxComponent object will give access to the data member functions shown below:



Returns

Returns the Pointer to the IpxComponent object

The following example will illustrate on how to access the IpxComponent data member function:

```
IpxDisplay* m_IpxDisplay = IpxDisplay::CreateComponent();

...

//Sets the IDP_OGL_BAYER
m_ipxDisplay->GetComponent()->SetParamString(IDP_OGL_BAYER, "0");

...
```

Note

Please reference the Display Component Parameters section to view the supported parameter names for IpxDisplay

5.3.2.4 GetSystemInfo()

```
virtual bool IpxDisplay::GetSystemInfo (
            char * buffer,
            int32_t bufferSz,
            const char * separator = "; " )  [pure virtual]
```

This function returns GPU information as text.

Parameters

in	*buffer*	allocated buffer for information
in	*bufferSz*	size of the buffer
in	*separator*	optional parameters separator

Returns

- If successful, returns true
- Otherwise, returns false

5.3.2.5 Initialize()

```
virtual IpxError IpxDisplay::Initialize (
            void * displayWindow,
```

```
const char * mode = "auto",
IpxImage * imageParams = 0 )  [pure virtual]
```

This function initializes the display library for playing videos/still images with the specified mode and image parameters.

Parameters

in	*displayWindow*	pointer to window. If the displayWindow is not specified, it will create a window.
in	*mode*	Display mode ("GDI", "OpenGL" mode or "auto" (default) for auto-detection)
in	*imageParams*	pointer to Image Parameters

Returns

Returns an error code:

- If successful, the IpxError code is IPX_ERR_OK and the display library has been initialized.
- Otherwise, the initialization of the display library failed.

5.3.2.6 SetVideoMode()

```
virtual IpxError IpxDisplay::SetVideoMode (
            IpxImage * imageParams,
            const char * mode = "auto" )  [pure virtual]
```

This function initializes video player for specified image parameters It should be called each time image parameters has been changed

Parameters

in	*imageParams*	image with specified width, height and pixel type
in	*mode*	either "GDI", "OpenGL" mode or "auto" (default) for auto-detection

Returns

Returns an error code:

- If successful, the IpxError code is IPX_ERR_OK and the display is ready to display new pixel format.
- Otherwise, the call has been failed and successive DisplayVideo() calls will not display any video.

5.3.2.7 DisplayVideo()

```
virtual IpxError IpxDisplay::DisplayVideo (
            IpxImage * image )  [pure virtual]
```

This function displays the video frame. [QT: yes].

Parameters

in	*image*	source image

Returns

Returns an error code:

- If successful, the IpxError code is IPX_ERR_OK and the function displays the video frame.
- Otherwise, the video frame is not displayed.

5.3.2.8 DisplayImage()

```
virtual IpxError IpxDisplay::DisplayImage (
            IpxImage * image,
            const char * mode = "auto" )  [pure virtual]
```

This function displays the still image. [QT: no].

Parameters

in	*image*	source image
in	*mode*	Display mode ("GDI", "OpenGL" mode or "auto" (default) for auto-detection)

Returns

Returns an error code:

- If successful, the IpxError code is IPX_ERR_OK and the function displays the still image.
- Otherwise, the still image is not displayed.

5.3.2.9 ConvertImage()

```
virtual IpxError IpxDisplay::ConvertImage (
            IpxImage * source,
            IpxImage * output )  [pure virtual]
```

This function converts the source image to the specified output image. [QT: no].

Parameters

in	*source*	source image

The only input source Pixel Types supported are shown in the tables below:

Table 5.27 BAYER CFA Pixel Types

Bayer Pattern Filter	8-bit	10-bit	12-bit	14-bit	16-bit
GR Pattern Filter	II_PIX_BAYGR8	II_PIX_BAYG↩ R10	II_PIX_BAYG↩ R12	II_PIX_BAYG↩ R14	II_PIX_BAYG↩ R16
RG Pattern Filter	II_PIX_BAYRG8	II_PIX_BAYR↩ G10	II_PIX_BAYR↩ G12	II_PIX_BAYR↩ G14	II_PIX_BAYR↩ G16
BG Pattern Filter	II_PIX_BAYBG8	II_PIX_BAYB↩ G10	II_PIX_BAYB↩ G12	II_PIX_BAYB↩ G14	II_PIX_BAYB↩ G16
GB Pattern Filter	II_PIX_BAYGB8	II_PIX_BAYG↩ B10	II_PIX_BAYG↩ B12	II_PIX_BAYG↩ B14	II_PIX_BAYG↩ B16

Table 5.28 PACKED BAYER CFA Pixel Types

Bayer Pattern Filter	10-bit	12-bit
GR Pattern Filter	II_PIX_BAYGR10_PACKED	II_PIX_BAYGR12_PACKED
RG Pattern Filter	II_PIX_BAYRG10_PACKED	II_PIX_BAYRG12_PACKED
GB Pattern Filter	II_PIX_BAYGB10_PACKED	II_PIX_BAYGB12_PACKED
GB Pattern Filter	II_PIX_BAYBG10_PACKED	II_PIX_BAYBG12_PACKED

Table 5.29 TrueSense CFA Pixel Types

TS Pattern Filter	8-bit	10-bit	12-bit	14-bit
BGGR w/ WBBW0	II_PIX_TS_BGGR↩ _WBBW0_8	II_PIX_TS_BGGR↩ _WBBW0_10	II_PIX_TS_BGGR↩ _WBBW0_12	II_PIX_TS_BGGR↩ _WBBW0_14
BGGR w/ WBBW1	II_PIX_TS_BGGR↩ _WBBW1_8	II_PIX_TS_BGGR↩ _WBBW1_10	II_PIX_TS_BGGR↩ _WBBW1_12	II_PIX_TS_BGGR↩ _WBBW1_14
BGGR w/ WBBW2	II_PIX_TS_BGGR↩ _WBBW2_8	II_PIX_TS_BGGR↩ _WBBW2_10	II_PIX_TS_BGGR↩ _WBBW2_12	II_PIX_TS_BGGR↩ _WBBW2_14
BGGR w/ WBBW3	II_PIX_TS_BGGR↩ _WBBW3_8	II_PIX_TS_BGGR↩ _WBBW3_10	II_PIX_TS_BGGR↩ _WBBW3_12	II_PIX_TS_BGGR↩ _WBBW3_14
GBRG w/ WGGW0	II_PIX_TS_GBRG↩ _WGGW0_8	II_PIX_TS_GBRG↩ _WGGW0_10	II_PIX_TS_GBRG↩ _WGGW0_12	II_PIX_TS_GBRG↩ _WGGW0_14
GBRG w/ WGGW1	II_PIX_TS_GBRG↩ _WGGW1_8	II_PIX_TS_GBRG↩ _WGGW1_10	II_PIX_TS_GBRG↩ _WGGW1_12	II_PIX_TS_GBRG↩ _WGGW1_14
GBRG w/ WGGW2	II_PIX_TS_GBRG↩ _WGGW2_8	II_PIX_TS_GBRG↩ _WGGW2_10	II_PIX_TS_GBRG↩ _WGGW2_12	II_PIX_TS_GBRG↩ _WGGW2_14
GBRG w/ WGGW3	II_PIX_TS_GBRG↩ _WGGW3_8	II_PIX_TS_GBRG↩ _WGGW3_10	II_PIX_TS_GBRG↩ _WGGW3_12	II_PIX_TS_GBRG↩ _WGGW3_14
GRBG w/ WGGW0	II_PIX_TS_GRBG↩ _WGGW0_8	II_PIX_TS_GRBG↩ _WGGW0_10	II_PIX_TS_GRBG↩ _WGGW0_12	II_PIX_TS_GRBG↩ _WGGW0_14
GRBG w/ WGGW1	II_PIX_TS_GRBG↩ _WGGW1_8	II_PIX_TS_GRBG↩ _WGGW1_10	II_PIX_TS_GRBG↩ _WGGW1_12	II_PIX_TS_GRBG↩ _WGGW1_14
GRBG w/ WGGW2	II_PIX_TS_GRBG↩ _WGGW2_8	II_PIX_TS_GRBG↩ _WGGW2_10	II_PIX_TS_GRBG↩ _WGGW2_12	II_PIX_TS_GRBG↩ _WGGW2_14
GRBG w/ WGGW3	II_PIX_TS_GRBG↩ _WGGW3_8	II_PIX_TS_GRBG↩ _WGGW3_10	II_PIX_TS_GRBG↩ _WGGW3_12	II_PIX_TS_GRBG↩ _WGGW3_14

TS Pattern Filter	8-bit	10-bit	12-bit	14-bit
RGGB w/ WRRW0	II_PIX_TS_RGGB↩ _WRRW0_8	II_PIX_TS_RGGB↩ _WRRW0_10	II_PIX_TS_RGGB↩ _WRRW0_12	II_PIX_TS_RGGB↩ _WRRW0_14
RGGB w/ WRRW1	II_PIX_TS_RGGB↩ _WRRW1_8	II_PIX_TS_RGGB↩ _WRRW1_10	II_PIX_TS_RGGB↩ _WRRW1_12	II_PIX_TS_RGGB↩ _WRRW1_14
RGGB w/ WRRW2	II_PIX_TS_RGGB↩ _WRRW2_8	II_PIX_TS_RGGB↩ _WRRW2_10	II_PIX_TS_RGGB↩ _WRRW2_12	II_PIX_TS_RGGB↩ _WRRW2_14
RGGB w/ WRRW3	II_PIX_TS_RGGB↩ _WRRW3_8	II_PIX_TS_RGGB↩ _WRRW3_10	II_PIX_TS_RGGB↩ _WRRW3_12	II_PIX_TS_RGGB↩ _WRRW3_14

Parameters

in	*output*	destination image

Returns

Returns an error code:

- If successful, the IpxError code is IPX_ERR_OK and the function converts the image.
- Otherwise, the source image is not converted.

5.3.2.10 Translate()

```
virtual IpxError IpxDisplay::Translate (
            int32_t * x,
            int32_t * y,
            int32_t flags )  [inline], [virtual]
```

This function translates the display object to the specified coordinates as indicated by the flag. [QT: yes].

Parameters

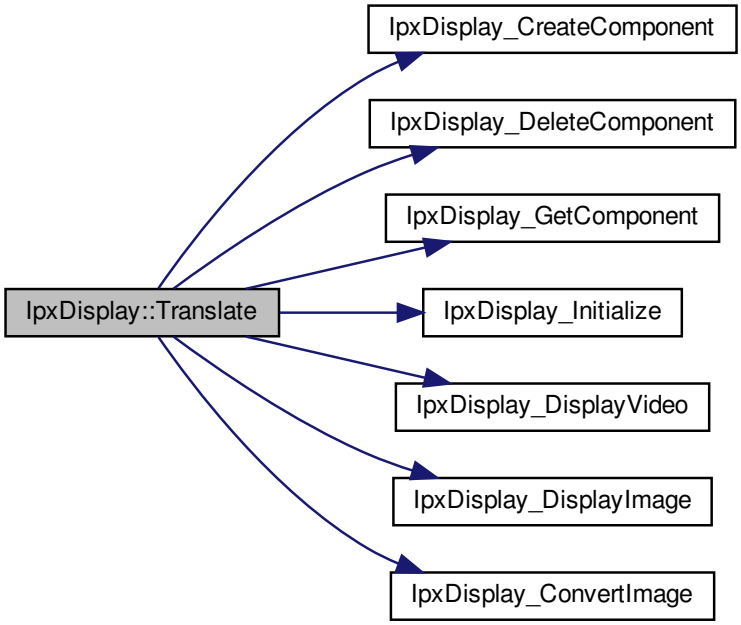
in	*x*	x-coordinate position
in	*y*	y-coordinate position
in	*flags*	Flag indicating mode to translate coordinates • **IDFL_SCR_IMG** Translate coordinates from screen to image coordinates • **IDFL_IMG_SCR** Translate coordinates from image to screen coordinates

Returns

Returns an error code:

- `If` successful, the IpxError code is IPX_ERR_OK and the function translates the object.
- `Otherwise`, the object failed to translate

Here is the call graph for this function:



The documentation for this class was generated from the following file:

- IpxDisplay.h

5.4 IpxImage Struct Reference

Data structure for description of Imperx Image.

`#include <IpxImage.h>`

Public Attributes

- uint32_t nSize
- uint32_t version
- IpxPixelTypeDescr pixelTypeDescr
- int32_t origin
- uint32_t width
- uint32_t height
- uint32_t imageSize
- uint32_t rowSize
- uint64_t timestamp
- uint64_t imageID
- IpxUserData * userData
- char * imageData
- char * imageDataOrigin

5.4.1 Detailed Description

Data structure for description of Imperx Image.

Note

IpxImage stores the image data in a char array. The number of bytes per pixel channel is defined by Pixel Type. The field 'imageDataOrigin' is used by IpxImage API for memory management and should not be changed by user.

See also

IpxPixelTypeDescr
II_PIXEL_TYPE_DEFINES
IpxCreateImage
IpxCreateImageHeader
IpxReleaseImage

5.4.2 Member Data Documentation

5.4.2.1 nSize

```
uint32_t IpxImage::nSize
```

Size of the IpxImage structure

5.4.2.2 version

```
uint32_t IpxImage::version
```

Version of data structure for image.

5.4.2.3 pixelTypeDescr

```
IpxPixelTypeDescr IpxImage::pixelTypeDescr
```

Descriptor of pixel format for image.

5.4.2.4 origin

```
int32_t IpxImage::origin
```

Origin of Image coordinate system: 0 - top-left origin: IIPL_ORIGIN_TL; 1 - bottom-left origin: IIPL_ORIGIN_BL (Windows bitmaps style).

5.4.2.5 width

```
uint32_t IpxImage::width
```

Image width in pixels.

5.4.2.6 height

```
uint32_t IpxImage::height
```

Image height in pixels.

5.4.2.7 imageSize

```
uint32_t IpxImage::imageSize
```

Image data size in bytes (equals image->height*image->rowSize in case of interleaved data).

5.4.2.8 rowSize

```
uint32_t IpxImage::rowSize
```

Size of aligned image row in bytes (not necessarily aligned) - needed for correct deallocation.

5.4.2.9 timestamp

```
uint64_t IpxImage::timestamp
```

Image timestamp.

5.4.2.10 imageID

```
uint64_t IpxImage::imageID
```

Image identifier. For U3V and GEV - block_id field of Leader packet

5.4.2.11 userData

```
IpxUserData* IpxImage::userData
```

User data, linked with this image.

5.4.2.12 imageData

```
char* IpxImage::imageData
```

Pointer to aligned image data.

5.4.2.13 imageDataOrigin

```
char* IpxImage::imageDataOrigin
```

Pointer to very origin of image data.

The documentation for this struct was generated from the following file:

- IpxImage.h

5.5 IpxImageConverter Class Reference

A Class for IpxImageConverter modules that contains methods to convert IpxImage images.

```
#include <IpxImageConverter.h>
```

Public Member Functions

- virtual IpxComponent * GetComponent ()=0

  This function returns the pointer to the IpxComponent object.
- virtual IpxError ConvertImage (IpxImage *source, IpxImage *output)=0

  This function converts the input source IpxImage to the targeted output destination IpxImage.
- virtual IpxError IIConvert (IpxImage *image_in, unsigned long outPixelType, IpxImage **image_out)=0

  This function converts the input sorce IpxImage to the targeted output destination IpxImage based on the output pixel type.

Static Public Member Functions

- static IPXC_API IpxImageConverter * CreateComponent ()

  This function returns the created IpxImageConverter instance.
- static IPXC_API void DeleteComponent (IpxImageConverter *component)

  This function deletes the IpxImageConverter component and all associated resources obtained by the IpxImageConverter object.

5.5.1 Detailed Description

A Class for IpxImageConverter modules that contains methods to convert IpxImage images.

A class containing methods for IpxImageConverter modules.

5.5.2 Member Function Documentation

5.5.2.1 CreateComponent()

```
static IPXC_API IpxImageConverter* IpxImageConverter::CreateComponent ( )  [static]
```

This function returns the created IpxImageConverter instance.

Returns

Returns the created IpxImageConverter object

5.5.2.2 DeleteComponent()

```
static IPXC_API void IpxImageConverter::DeleteComponent (
            IpxImageConverter * component )  [static]
```

This function deletes the IpxImageConverter component and all associated resources obtained by the IpxImageConverter object.

Parameters

in	*component*	Pointer to the IpxImageConverter object

Returns

Returns void

5.5.2.3 GetComponent()

```
virtual IpxComponent* IpxImageConverter::GetComponent ( )  [pure virtual]
```

This function returns the pointer to the IpxComponent object.

Returns

Returns the Pointer to the IpxComponent object

5.5.2.4 ConvertImage()

```
virtual IpxError IpxImageConverter::ConvertImage (
            IpxImage * source,
            IpxImage * output )  [pure virtual]
```

This function converts the input source IpxImage to the targeted output destination IpxImage.

Parameters

in	*source*	Pointer to the input source IpxImage
out	*output*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- IPX_ERR_OK Successfully converts the source IpxImage to the targeted output destination IpxImage
- If IpxError error code $<$ 0, then it returns a negative error code indicating problems converting the IpxImage

5.5.2.5 IIConvert()

```
virtual IpxError IpxImageConverter::IIConvert (
            IpxImage * image_in,
            unsigned long outPixelType,
            IpxImage ** image_out )  [pure virtual]
```

This function converts the input sorce IpxImage to the targeted output destination IpxImage based on the output pixel type.

Parameters

in	*image_in*	input source IpxImage image
in	*outPixelType*	Output pixel type
out	*image_out*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- IPX_ERR_OK Successfully converts the source IpxImage to the targeted output destination IpxImage based on the output pixel type.
- If IpxError error code < 0, then it returns a negative error code indicating problems converting the IpxImage

The documentation for this class was generated from the following file:

- IpxImageConverter.h

5.6 IpxImageSerializer Class Reference

IpxComponent to save IpxImage to disk.

`#include <IpxImageSerializer.h>`

Public Member Functions

- virtual IpxComponent * GetComponent ()=0

  This function returns the pointer to the IpxComponent object.
- virtual IpxError StartSeriesRecord (IpxImage *pSrc, const char *format)=0

  This function starts the recording session for series of images of the same format.
- virtual IpxError StartMovieRecord (IpxImage *pSrc, const char *fileName, double fps)=0

  This function starts the recording session for movies.
- virtual IpxError FinishRecord ()=0

  This function ends the recording session.
- virtual IpxError Save (IpxImage *image, const char *fileName=0)=0
- virtual IpxError Load (IpxImage *image, const char *fileName)=0

  This function reads and loads the standalone image record.
- virtual IpxError GetImageHeader (IpxImage *image, const char *fileName)=0

  This function reads and loads the standalone image header.
- virtual IpxError Free (IpxImage *image)=0

  This function frees the image loaded with IpxImageSerializer.

Static Public Member Functions

- static IPXS_API IpxImageSerializer * CreateComponent (bool enableMovies=true)

  This function returns the IpxHandle for the created IpxImageSerializer instance.
- static IPXS_API void DeleteComponent (IpxImageSerializer *component)

  This function returns the IpxHandle for the created IpxImageSerializer instance.

5.6.1 Detailed Description

IpxComponent to save IpxImage to disk.

IpxImageSerializer

5.6.2 Member Function Documentation

5.6.2.1 CreateComponent()

```
static IPXS_API IpxImageSerializer* IpxImageSerializer::CreateComponent (
            bool enableMovies = true )  [static]
```

This function returns the IpxHandle for the created IpxImageSerializer instance.

Parameters

in	*enableMovies*	flag to enable Movies

Returns

Returns the IpxHandle for the created IpxImageSerializer object

5.6.2.2 DeleteComponent()

```
static IPXS_API void IpxImageSerializer::DeleteComponent (
            IpxImageSerializer * component )  [static]
```

This function returns the IpxHandle for the created IpxImageSerializer instance.

Parameters

in	*component*	Pointer to IpxImageSerializer component

Returns

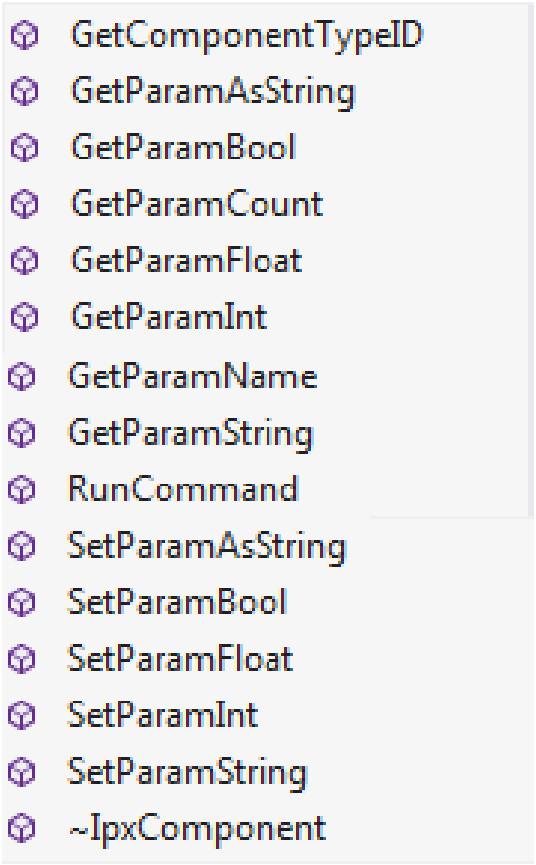
void

5.6.2.3 GetComponent()

```
virtual IpxComponent* IpxImageSerializer::GetComponent ( )  [pure virtual]
```

This function returns the pointer to the IpxComponent object.

The IpxComponent object will give access to the data member functions shown below:



Returns

Returns the Pointer to the IpxComponent object

The following example will illustrate on how to access the IpxComponent data member function:

```
IpxImageSerializer* serializer =
      IpxImageSerializer::CreateComponent();
IpxError            res = IPX_ERR_UNKNOWN;

if (serializer) {
     (serializer->GetComponent())->SetParamInt(ISP_JPEG_QUALITY, mJpgQuality);
     res = serializer->Save(image, fileName);
}

...

IpxImageSerializer::DeleteComponent(serializer);
```

5.6.2.4 StartSeriesRecord()

```
virtual IpxError IpxImageSerializer::StartSeriesRecord (
             IpxImage * pSrc,
             const char * format )  [pure virtual]
```

This function starts the recording session for series of images of the same format.

Parameters

in	*pSrc*	input source Imperx Image
in	*format*	Image Format Type

Returns

Returns the error code:

- IPX_ERR_OK Successfully starts the recording series.
- If IpxError error code $<$ 0, then it returns a negative error code indicating problem starting the recording series.

5.6.2.5 StartMovieRecord()

```
virtual IpxError IpxImageSerializer::StartMovieRecord (
             IpxImage * pSrc,
             const char * fileName,
             double fps )  [pure virtual]
```

This function starts the recording session for movies.

Parameters

in	*pSrc*	input source Imperx Image
in	*fileName*	file name
in	*fps*	frames per second

Returns

Returns the error code:

- IPX_ERR_OK Successfully starts the recording session for movies.
- If IpxError error code $<$ 0, then it returns a negative error code indicating problem starting the recording session for movie

5.6.2.6 FinishRecord()

```
virtual IpxError IpxImageSerializer::FinishRecord ( )  [pure virtual]
```

This function ends the recording session.

Returns

Returns the error code:

- IPX_ERR_OK Successfully ends the recording session.
- If IpxError error code $<$ 0, then it returns a negative error code indicating problem ending the recording session

5.6.2.7 Save()

```
virtual IpxError IpxImageSerializer::Save (
            IpxImage * image,
            const char * fileName = 0 )  [pure virtual]
```

This function saves the standalone image or puts the image to recording session if StartSeriesRecord() or StartMovie↩ Record() method was called

Parameters

in	*image*	input source Imperx Image
in	*fileName*	file name

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully saves the standalone image
- `If` IpxError error code $<$ 0, then it returns a negative error code indicating problem saving the record

5.6.2.8 Load()

```
virtual IpxError IpxImageSerializer::Load (
            IpxImage * image,
            const char * fileName )  [pure virtual]
```

This function reads and loads the standalone image record.

Parameters

in	*image*	input source Imperx Image
in	*fileName*	file name

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully allocates the IpxImage data.
- `If` IpxError error code $<$ 0, then it returns a negative error code indicating problems reading the standalone image

5.6.2.9 GetImageHeader()

```
virtual IpxError IpxImageSerializer::GetImageHeader (
            IpxImage * image,
            const char * fileName )  [pure virtual]
```

This function reads and loads the standalone image header.

Parameters

in	*image*	input source Imperx Image
in	*fileName*	file name(wide char)

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully allocates the IpxImage data.
- `If` IpxError error code $<$ 0, then it returns a negative error code indicating problems reading the standalone image

5.6.2.10 Free()

```
virtual IpxError IpxImageSerializer::Free (
            IpxImage * image )  [pure virtual]
```

This function frees the image loaded with IpxImageSerializer.

Parameters

`in`	*image*	input source Imperx Image

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully frees the allocates memory of the IpxImage image.
- `If` IpxError error code $<$ 0, then it returns a negative error code indicating problems freeing the loaded image

The documentation for this class was generated from the following file:

- IpxImageSerializer.h

5.7 IpxImageUnpacker Class Reference

IpxComponent to unpack images.

```
#include <IpxImageUnpacker.h>
```

Public Member Functions

- virtual IpxComponent * GetComponent ()=0

  This function returns the pointer to the IpxComponent object.
- virtual IpxError Unpack (IpxImage *source, IpxImage *output, void *ptr=0)=0

  This function transforms the packed source image to the unpacked one.

Static Public Member Functions

- static IPXU_API IpxImageUnpacker * CreateComponent ()

  This function returns the created IpxImageUnpacker instance.
- static IPXU_API void DeleteComponent (IpxImageUnpacker *component)

  This function deletes the IpxImageUnpacker component and all associated resources obtained by the IpxImageUnpacker object.

5.7.1 Detailed Description

IpxComponent to unpack images.

IpxImageUnpacker

5.7.2 Member Function Documentation

5.7.2.1 CreateComponent()

```
static IPXU_API IpxImageUnpacker* IpxImageUnpacker::CreateComponent ( )  [static]
```

This function returns the created IpxImageUnpacker instance.

Returns

Returns the created IpxImageUnpacker object

5.7.2.2 DeleteComponent()

```
static IPXU_API void IpxImageUnpacker::DeleteComponent (
            IpxImageUnpacker * component )  [static]
```

This function deletes the IpxImageUnpacker component and all associated resources obtained by the IpxImage↩ Unpacker object.

Parameters

in	*component*	Pointer to the IpxImageUnpacker object

Returns

Returns void

5.7.2.3 GetComponent()

```
virtual IpxComponent* IpxImageUnpacker::GetComponent ( )  [pure virtual]
```

This function returns the pointer to the IpxComponent object.

Returns

Returns the Pointer to the IpxComponent object

5.7.2.4 Unpack()

```
virtual IpxError IpxImageUnpacker::Unpack (
            IpxImage * source,
            IpxImage * output,
            void * ptr = 0 )  [pure virtual]
```

This function transforms the packed source image to the unpacked one.

Parameters

source	Pointer to source IpxImage.
output	Pointer to destination IpxImage.
ptr	Pointer to private data.

Returns

If the function succeeds, the return value is 0. If the function fails, the return value is non-zero.

Note

This function transforms the source RAW image to the destination image by unpacking the image and deinterlacing if neccessary. Also, it allocates the destination output image memory if the user didn't pre-allocation the destination image.

Fo example:

```
IpxImageUnpacker*   unpacker = IpxImageUnpacker::CreateComponent
      ();
IpxError            res = IPX_ERR_UNKNOWN;

...

if (unpacker) res = unpacker->Unpack(source, output);

if (!IPX_ERR_SUCCEEDED(res)) {
      //TODO: Process error
}

IpxImageUnpacker::DeleteComponent(unpacker);
```

The documentation for this class was generated from the following file:

- IpxImageUnpacker.h

5.8 IpxImgProcessor Class Reference

Pure virtual base class for image processor.

`#include <IpxImgProcessor.h>`

5.8.1 Detailed Description

Pure virtual base class for image processor.

IpxImgProcessor

The documentation for this class was generated from the following file:

- IpxImgProcessor.h

5.9 IpxPixelTypeDescr Struct Reference

Base type of data for description of IpxImage and other image data types.

`#include <IpxPixelType.h>`

Public Attributes

- uint32_t pixelType
- uint32_t depth
- bool pixSigned
- uint32_t pixAlign
- uint32_t channels
- uint32_t pixSize

5.9.1 Detailed Description

Base type of data for description of IpxImage and other image data types.

Data structure for description of pixel format.

Note

IpxPixelTypeDescr stores parameters of the pixel format.

See also

II_PIXEL_TYPE_DEFINES
IpxCreateImage
IpxCreateImageHeader
IpxReleaseImage

5.9.2 Member Data Documentation

5.9.2.1 pixelType

```
uint32_t IpxPixelTypeDescr::pixelType
```

Pixel type.

5.9.2.2 depth

```
uint32_t IpxPixelTypeDescr::depth
```

Bit depth of channels.

5.9.2.3 pixSigned

```
bool IpxPixelTypeDescr::pixSigned
```

true for signed pixel.

5.9.2.4 pixAlign

```
uint32_t IpxPixelTypeDescr::pixAlign
```

Pixel packing (packed/normalized).

5.9.2.5 channels

```
uint32_t IpxPixelTypeDescr::channels
```

Number of channels.

5.9.2.6 pixSize

```
uint32_t IpxPixelTypeDescr::pixSize
```

Pixel size in bits.

The documentation for this struct was generated from the following file:

- IpxPixelType.h

5.10 IpxPoint Struct Reference

The IpxPoint structure specifies a point.

```
#include <IpxToolsBase.h>
```

Public Attributes

- int x
- int y

5.10.1 Detailed Description

The IpxPoint structure specifies a point.

5.10.2 Member Data Documentation

5.10.2.1 x

```
int IpxPoint::x
```

Specifies the x coordinate of the point.

5.10.2.2 y

```
int IpxPoint::y
```

Specifies the y coordinate of the point.

The documentation for this struct was generated from the following file:

- IpxToolsBase.h

5.11 IpxRect Struct Reference

The IpxRect structure defines a rectangle by the coordinates of its upper-left corner and width, height.

```
#include <IpxToolsBase.h>
```

Public Attributes

- int x
- int y
- int width
- int height

5.11.1 Detailed Description

The IpxRect structure defines a rectangle by the coordinates of its upper-left corner and width, height.

5.11.2 Member Data Documentation

5.11.2.1 x

```
int IpxRect::x
```

Specifies the x-coordinate of the upper-left corner of the rectangle.

5.11.2.2 y

```
int IpxRect::y
```

Specifies the y-coordinate of the upper-left corner of the rectangle.

5.11.2.3 width

```
int IpxRect::width
```

Specifies the width of the rectangle.

5.11.2.4 height

```
int IpxRect::height
```

Specifies the height of the rectangle.

The documentation for this struct was generated from the following file:

- IpxToolsBase.h

5.12 IpxSize Struct Reference

The IpxSize structure specifies a rectangle.

```
#include <IpxToolsBase.h>
```

Public Attributes

- int width
- int height

5.12.1 Detailed Description

The IpxSize structure specifies a rectangle.

5.12.2 Member Data Documentation

5.12.2.1 width

```
int IpxSize::width
```

Specifies the width of the rectangle.

5.12.2.2 height

```
int IpxSize::height
```

Specifies the height of the rectangle.

The documentation for this struct was generated from the following file:

- IpxToolsBase.h

5.13 IpxTrueSense Class Reference

A Class for IpxTrueSense modules that contains methods to convert IpxImage images.

```
#include <IpxTrueSense.h>
```

Public Member Functions

- virtual IpxComponent * GetComponent ()=0

  This function returns the pointer to the IpxComponent object.
- virtual IpxError ConvertImage (const IpxImage *pSrc, IpxImage *pDst)=0

  This TrueSense CFA Demosaicing function converts the input source IpxImage to the targeted output destination IpxImage.
- virtual IpxError AllocData (const IpxImage *pSrc, IpxImage *pDst)=0

  This function allocates memory.
- virtual void ReleaseData ()=0

  This function releases the allocated memory.

Static Public Member Functions

- static TS_API IpxTrueSense * CreateComponent ()

  This function returns the created IpxTrueSense instance.
- static TS_API void DeleteComponent (IpxTrueSense *in)

  This function deletes the IpxTrueSense component and all associated resources obtained by the IpxTrueSense object.

5.13.1 Detailed Description

A Class for IpxTrueSense modules that contains methods to convert IpxImage images.

A class containing methods for IpxTrueSense modules.

5.13.2 Member Function Documentation

5.13.2.1 CreateComponent()

```
static TS_API IpxTrueSense* IpxTrueSense::CreateComponent ( )  [static]
```

This function returns the created IpxTrueSense instance.

Returns

Returns the created IpxTrueSense object

5.13.2.2 DeleteComponent()

```
static TS_API void IpxTrueSense::DeleteComponent (
            IpxTrueSense * in )  [static]
```

This function deletes the IpxTrueSense component and all associated resources obtained by the IpxTrueSense object.

Parameters

in	*in*	Pointer to the IpxTrueSense object

Returns

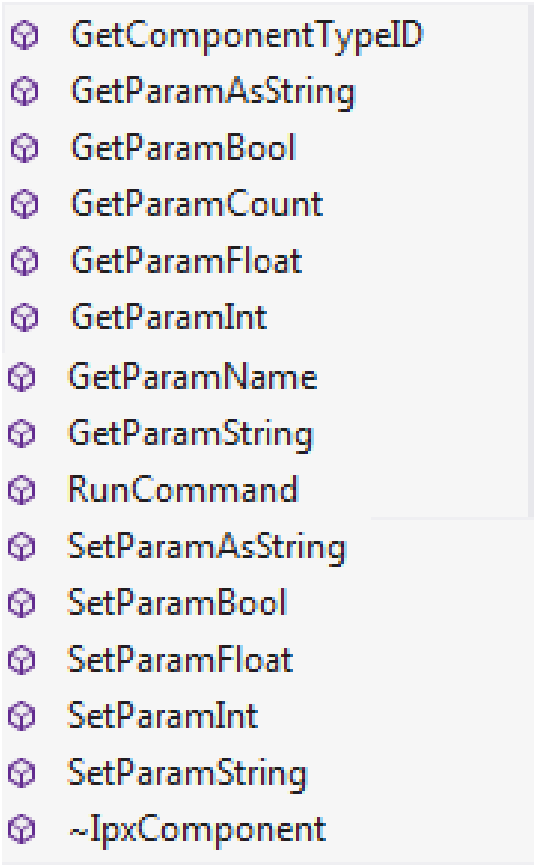
Returns void

5.13.2.3 GetComponent()

```
virtual IpxComponent* IpxTrueSense::GetComponent ( )  [pure virtual]
```

This function returns the pointer to the IpxComponent object.

The IpxComponent object will give access to the data member functions shown below:



Returns

Returns the Pointer to the IpxComponent object

The following example will illustrate on how to access the IpxComponent data member function:

```
IpxTrueSense *pDeTS = IpxTrueSense::CreateComponent();
IpxError err  = pDeTS->GetComponent()->SetParamInt("TrueSenseAlgType", 3);
pDeTS->ConvertImage(imageIN, imageOUT);
IpxTrueSense::DeleteComponent(pDeTS);
```

5.13.2.4 ConvertImage()

```
virtual IpxError IpxTrueSense::ConvertImage (
            const IpxImage * pSrc,
            IpxImage * pDst )  [pure virtual]
```

This TrueSense CFA Demosaicing function converts the input source IpxImage to the targeted output destination IpxImage.

Parameters

in	*pSrc*	Pointer to the input source IpxImage

The only input source Pixel Types supported are shown in the tables below:

Table 5.47 TrueSense CFA Pixel Types

TS Pattern Filter	8-bit	10-bit	12-bit	14-bit
BGGR w/ WBBW0	II_PIX_TS_BGGR_WBBW0_8	II_PIX_TS_BGGR_WBBW0_10	II_PIX_TS_BGGR_WBBW0_12	II_PIX_TS_BGGR_WBBW0_14
BGGR w/ WBBW1	II_PIX_TS_BGGR_WBBW1_8	II_PIX_TS_BGGR_WBBW1_10	II_PIX_TS_BGGR_WBBW1_12	II_PIX_TS_BGGR_WBBW1_14
BGGR w/ WBBW2	II_PIX_TS_BGGR_WBBW2_8	II_PIX_TS_BGGR_WBBW2_10	II_PIX_TS_BGGR_WBBW2_12	II_PIX_TS_BGGR_WBBW2_14
BGGR w/ WBBW3	II_PIX_TS_BGGR_WBBW3_8	II_PIX_TS_BGGR_WBBW3_10	II_PIX_TS_BGGR_WBBW3_12	II_PIX_TS_BGGR_WBBW3_14
GBRG w/ WGGW0	II_PIX_TS_GBRG_WGGW0_8	II_PIX_TS_GBRG_WGGW0_10	II_PIX_TS_GBRG_WGGW0_12	II_PIX_TS_GBRG_WGGW0_14
GBRG w/ WGGW1	II_PIX_TS_GBRG_WGGW1_8	II_PIX_TS_GBRG_WGGW1_10	II_PIX_TS_GBRG_WGGW1_12	II_PIX_TS_GBRG_WGGW1_14
GBRG w/ WGGW2	II_PIX_TS_GBRG_WGGW2_8	II_PIX_TS_GBRG_WGGW2_10	II_PIX_TS_GBRG_WGGW2_12	II_PIX_TS_GBRG_WGGW2_14
GBRG w/ WGGW3	II_PIX_TS_GBRG_WGGW3_8	II_PIX_TS_GBRG_WGGW3_10	II_PIX_TS_GBRG_WGGW3_12	II_PIX_TS_GBRG_WGGW3_14
GRBG w/ WGGW0	II_PIX_TS_GRBG_WGGW0_8	II_PIX_TS_GRBG_WGGW0_10	II_PIX_TS_GRBG_WGGW0_12	II_PIX_TS_GRBG_WGGW0_14
GRBG w/ WGGW1	II_PIX_TS_GRBG_WGGW1_8	II_PIX_TS_GRBG_WGGW1_10	II_PIX_TS_GRBG_WGGW1_12	II_PIX_TS_GRBG_WGGW1_14
GRBG w/ WGGW2	II_PIX_TS_GRBG_WGGW2_8	II_PIX_TS_GRBG_WGGW2_10	II_PIX_TS_GRBG_WGGW2_12	II_PIX_TS_GRBG_WGGW2_14
GRBG w/ WGGW3	II_PIX_TS_GRBG_WGGW3_8	II_PIX_TS_GRBG_WGGW3_10	II_PIX_TS_GRBG_WGGW3_12	II_PIX_TS_GRBG_WGGW3_14
RGGB w/ WRRW0	II_PIX_TS_RGGB_WRRW0_8	II_PIX_TS_RGGB_WRRW0_10	II_PIX_TS_RGGB_WRRW0_12	II_PIX_TS_RGGB_WRRW0_14
RGGB w/ WRRW1	II_PIX_TS_RGGB_WRRW1_8	II_PIX_TS_RGGB_WRRW1_10	II_PIX_TS_RGGB_WRRW1_12	II_PIX_TS_RGGB_WRRW1_14
RGGB w/ WRRW2	II_PIX_TS_RGGB_WRRW2_8	II_PIX_TS_RGGB_WRRW2_10	II_PIX_TS_RGGB_WRRW2_12	II_PIX_TS_RGGB_WRRW2_14
RGGB w/ WRRW3	II_PIX_TS_RGGB_WRRW3_8	II_PIX_TS_RGGB_WRRW3_10	II_PIX_TS_RGGB_WRRW3_12	II_PIX_TS_RGGB_WRRW3_14

Parameters

out	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully converts the source IpxImage to the targeted output destination IpxImage
- `If` IpxError error code < 0, then it returns a negative error code indicating problems converting the IpxImage

5.13.2.5 AllocData()

```
virtual IpxError IpxTrueSense::AllocData (
            const IpxImage * pSrc,
            IpxImage * pDst )  [pure virtual]
```

This function allocates memory.

Parameters

in	*pSrc*	Pointer to the input source IpxImage
in	*pDst*	Pointer to the output destination IpxImage

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully allocates data
- `If` IpxError error code < 0, then it returns a negative error code indicating problem allocating memory

5.13.2.6 ReleaseData()

```
virtual void IpxTrueSense::ReleaseData ( )  [pure virtual]
```

This function releases the allocated memory.

Returns

Returns the error code:

- `IPX_ERR_OK` Successfully releases the allocated data
- `If` IpxError error code < 0, then it returns a negative error code indicating problem releasing the data allocated

The documentation for this class was generated from the following file:

- IpxTrueSense.h

5.14 IpxUserData Struct Reference

Data structure for description of User Data linked with Imperx Image.

`#include <IpxUserData.h>`

Public Attributes

- unsigned long type
- unsigned long id
- unsigned long size
- void * data
- bool createdIpx
- _IpxUserData * pNext

5.14.1 Detailed Description

Data structure for description of User Data linked with Imperx Image.

Note

IpxTools Library provides only base operation for handling of user data.

See also

IpxCreateUserData
IpxReleaseUserData

5.14.2 Member Data Documentation

5.14.2.1 type

`unsigned long IpxUserData::type`

type Type of user data. (II_NOT_DATA, II_HASHTABLE, II_XML_DATA, II_CUSTOM_DATA)

5.14.2.2 id

`unsigned long IpxUserData::id`

id ID of user data (must be > 0).

5.14.2.3 size

```
unsigned long IpxUserData::size
```

size Size of user data.

5.14.2.4 data

```
void* IpxUserData::data
```

data User data.

5.14.2.5 createdIpx

```
bool IpxUserData::createdIpx
```

createdIpx Indicates if user data was created by IpxTools. If true, then the user data is created by IpxTools.

5.14.2.6 pNext

```
_IpxUserData* IpxUserData::pNext
```

pNext Pointer to next User data block, or nullptr if next block does not exist.

The documentation for this struct was generated from the following file:

- IpxUserData.h

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