FlyCapture2

2.13.3.31

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Contents

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Software Licensing Information

Table 1.1 License table

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Libraw1394	LGPLv2.0 License `http://www.gnu.org/licenses/old-licenses/lgpl-2.↩ 0.txt`

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Module Documentation

7.1 Global constants

Variables

- static const unsigned int sk_maxStringLength = 512

  The maximum length that is allocated for a string.
- static const unsigned int sk_maxNumPorts = 32

  The maximum number of ports one device can have.

7.1.1 Detailed Description

7.1.2 Variable Documentation

7.1.2.1 sk_maxNumPorts

```
const unsigned int sk_maxNumPorts = 32  [static]
```

The maximum number of ports one device can have.

7.1.2.2 sk_maxStringLength

```
const unsigned int sk_maxStringLength = 512  [static]
```

The maximum length that is allocated for a string.

7.2 Enumerations

Enumerations

- enum ErrorType {
  PGRERROR_UNDEFINED = -1,
  PGRERROR_OK,
  PGRERROR_FAILED,
  PGRERROR_NOT_IMPLEMENTED,
  PGRERROR_FAILED_BUS_MASTER_CONNECTION,
  PGRERROR_NOT_CONNECTED,
  PGRERROR_INIT_FAILED,
  PGRERROR_NOT_INTITIALIZED,
  PGRERROR_INVALID_PARAMETER,
  PGRERROR_INVALID_SETTINGS,
  PGRERROR_INVALID_BUS_MANAGER,
  PGRERROR_MEMORY_ALLOCATION_FAILED,
  PGRERROR_LOW_LEVEL_FAILURE,
  PGRERROR_NOT_FOUND,
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  PGRERROR_INVALID_PACKET_SIZE,
  PGRERROR_INVALID_MODE,
  PGRERROR_NOT_IN_FORMAT7,
  PGRERROR_NOT_SUPPORTED,
  PGRERROR_TIMEOUT,
  PGRERROR_BUS_MASTER_FAILED,
  PGRERROR_INVALID_GENERATION,
  PGRERROR_LUT_FAILED,
  PGRERROR_IIDC_FAILED,
  PGRERROR_STROBE_FAILED,
  PGRERROR_TRIGGER_FAILED,
  PGRERROR_PROPERTY_FAILED,
  PGRERROR_PROPERTY_NOT_PRESENT,
  PGRERROR_REGISTER_FAILED,
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  PGRERROR_WRITE_REGISTER_FAILED,
  PGRERROR_ISOCH_FAILED,
  PGRERROR_ISOCH_ALREADY_STARTED,
  PGRERROR_ISOCH_NOT_STARTED,
  PGRERROR_ISOCH_START_FAILED,
  PGRERROR_ISOCH_RETRIEVE_BUFFER_FAILED,
  PGRERROR_ISOCH_STOP_FAILED,
  PGRERROR_ISOCH_SYNC_FAILED,
  PGRERROR_ISOCH_BANDWIDTH_EXCEEDED,
  PGRERROR_IMAGE_CONVERSION_FAILED,
  PGRERROR_IMAGE_LIBRARY_FAILURE,
  PGRERROR_BUFFER_TOO_SMALL,
  PGRERROR_IMAGE_CONSISTENCY_ERROR,
  PGRERROR_INCOMPATIBLE_DRIVER,
  PGRERROR_FORCE_32BITS = FULL_32BIT_VALUE }

  The error types returned by functions.
- enum BusCallbackType {
  BUS_RESET,
  ARRIVAL,
  REMOVAL,
  CALLBACK_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

  The type of bus callback to register a callback function for.

- enum GrabMode {
  DROP_FRAMES,
  BUFFER_FRAMES,
  UNSPECIFIED_GRAB_MODE,
  GRAB_MODE_FORCE_32BITS = FULL_32BIT_VALUE }

  The grab strategy employed during image transfer.
- enum GrabTimeout {
  TIMEOUT_NONE = 0,
  TIMEOUT_INFINITE = -1,
  TIMEOUT_UNSPECIFIED = -2,
  GRAB_TIMEOUT_FORCE_32BITS = FULL_32BIT_VALUE }

  Timeout options for grabbing images.
- enum BandwidthAllocation {
  BANDWIDTH_ALLOCATION_OFF = 0,
  BANDWIDTH_ALLOCATION_ON = 1,
  BANDWIDTH_ALLOCATION_UNSUPPORTED = 2,
  BANDWIDTH_ALLOCATION_UNSPECIFIED = 3,
  BANDWIDTH_ALLOCATION_FORCE_32BITS = FULL_32BIT_VALUE }

  Bandwidth allocation options for 1394 devices.
- enum InterfaceType {
  INTERFACE_IEEE1394,
  INTERFACE_USB2,
  INTERFACE_USB3,
  INTERFACE_GIGE,
  INTERFACE_UNKNOWN,
  INTERFACE_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

  Interfaces that a camera may use to communicate with a host.
- enum PropertyType {
  BRIGHTNESS,
  AUTO_EXPOSURE,
  SHARPNESS,
  WHITE_BALANCE,
  HUE,
  SATURATION,
  GAMMA,
  IRIS,
  FOCUS,
  ZOOM,
  PAN,
  TILT,
  SHUTTER,
  GAIN,
  TRIGGER_MODE,
  TRIGGER_DELAY,
  FRAME_RATE,
  TEMPERATURE,
  UNSPECIFIED_PROPERTY_TYPE,
  PROPERTY_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

  Camera properties.
- enum FrameRate {
  FRAMERATE_1_875,
  FRAMERATE_3_75,
  FRAMERATE_7_5,
  FRAMERATE_15,
  FRAMERATE_30,
  FRAMERATE_60,
  FRAMERATE_120,

FRAMERATE_240,
FRAMERATE_FORMAT7,
NUM_FRAMERATES,
FRAMERATE_FORCE_32BITS = FULL_32BIT_VALUE }

Frame rates in frames per second.

- enum VideoMode {
VIDEOMODE_160x120YUV444,
VIDEOMODE_320x240YUV422,
VIDEOMODE_640x480YUV411,
VIDEOMODE_640x480YUV422,
VIDEOMODE_640x480RGB,
VIDEOMODE_640x480Y8,
VIDEOMODE_640x480Y16,
VIDEOMODE_800x600YUV422,
VIDEOMODE_800x600RGB,
VIDEOMODE_800x600Y8,
VIDEOMODE_800x600Y16,
VIDEOMODE_1024x768YUV422,
VIDEOMODE_1024x768RGB,
VIDEOMODE_1024x768Y8,
VIDEOMODE_1024x768Y16,
VIDEOMODE_1280x960YUV422,
VIDEOMODE_1280x960RGB,
VIDEOMODE_1280x960Y8,
VIDEOMODE_1280x960Y16,
VIDEOMODE_1600x1200YUV422,
VIDEOMODE_1600x1200RGB,
VIDEOMODE_1600x1200Y8,
VIDEOMODE_1600x1200Y16,
VIDEOMODE_FORMAT7,
NUM_VIDEOMODES,
VIDEOMODE_FORCE_32BITS = FULL_32BIT_VALUE }

DCAM video modes.

- enum Mode {
MODE_0 = 0,
MODE_1,
MODE_2,
MODE_3,
MODE_4,
MODE_5,
MODE_6,
MODE_7,
MODE_8,
MODE_9,
MODE_10,
MODE_11,
MODE_12,
MODE_13,
MODE_14,
MODE_15,
MODE_16,
MODE_17,
MODE_18,
MODE_19,
MODE_20,
MODE_21,
MODE_22,
MODE_23,

MODE_24,
MODE_25,
MODE_26,
MODE_27,
MODE_28,
MODE_29,
MODE_30,
MODE_31,
NUM_MODES,
MODE_FORCE_32BITS = FULL_32BIT_VALUE }

Camera modes for DCAM formats as well as Format7.

- enum PixelFormat {
PIXEL_FORMAT_MONO8 = 0x80000000,
PIXEL_FORMAT_411YUV8 = 0x40000000,
PIXEL_FORMAT_422YUV8 = 0x20000000,
PIXEL_FORMAT_444YUV8 = 0x10000000,
PIXEL_FORMAT_RGB8 = 0x08000000,
PIXEL_FORMAT_MONO16 = 0x04000000,
PIXEL_FORMAT_RGB16 = 0x02000000,
PIXEL_FORMAT_S_MONO16 = 0x01000000,
PIXEL_FORMAT_S_RGB16 = 0x00800000,
PIXEL_FORMAT_RAW8 = 0x00400000,
PIXEL_FORMAT_RAW16 = 0x00200000,
PIXEL_FORMAT_MONO12 = 0x00100000,
PIXEL_FORMAT_RAW12 = 0x00080000,
PIXEL_FORMAT_BGR = 0x80000008,
PIXEL_FORMAT_BGRU = 0x40000008,
PIXEL_FORMAT_RGB = PIXEL_FORMAT_RGB8,
PIXEL_FORMAT_RGBU = 0x40000002,
PIXEL_FORMAT_BGR16 = 0x02000001,
PIXEL_FORMAT_BGRU16 = 0x02000002,
PIXEL_FORMAT_422YUV8_JPEG = 0x40000001,
NUM_PIXEL_FORMATS = 20,
UNSPECIFIED_PIXEL_FORMAT = 0 }

Pixel formats available for Format7 modes.

- enum BusSpeed {
BUSSPEED_S100,
BUSSPEED_S200,
BUSSPEED_S400,
BUSSPEED_S480,
BUSSPEED_S800,
BUSSPEED_S1600,
BUSSPEED_S3200,
BUSSPEED_S5000,
BUSSPEED_10BASE_T,
BUSSPEED_100BASE_T,
BUSSPEED_1000BASE_T,
BUSSPEED_10000BASE_T,
BUSSPEED_S_FASTEST,
BUSSPEED_ANY,
BUSSPEED_SPEED_UNKNOWN = -1,
BUSSPEED_FORCE_32BITS = FULL_32BIT_VALUE }

Bus speeds.

- enum PCIeBusSpeed {
PCIE_BUSSPEED_2_5,
PCIE_BUSSPEED_5_0,
PCIE_BUSSPEED_UNKNOWN = -1,
PCIE_BUSSPEED_FORCE_32BITS = FULL_32BIT_VALUE }

- enum DriverType {
  DRIVER_1394_CAM,
  DRIVER_1394_PRO,
  DRIVER_1394_JUJU,
  DRIVER_1394_VIDEO1394,
  DRIVER_1394_RAW1394,
  DRIVER_USB_NONE,
  DRIVER_USB_CAM,
  DRIVER_USB3_PRO,
  DRIVER_GIGE_NONE,
  DRIVER_GIGE_FILTER,
  DRIVER_GIGE_PRO,
  DRIVER_GIGE_LWF,
  DRIVER_UNKNOWN = -1,
  DRIVER_FORCE_32BITS = FULL_32BIT_VALUE }

  Types of low level drivers that flycapture uses.
- enum ColorProcessingAlgorithm {
  DEFAULT,
  NO_COLOR_PROCESSING,
  NEAREST_NEIGHBOR,
  EDGE_SENSING,
  HQ_LINEAR,
  RIGOROUS,
  IPP,
  DIRECTIONAL_FILTER,
  WEIGHTED_DIRECTIONAL_FILTER,
  COLOR_PROCESSING_ALGORITHM_FORCE_32BITS = FULL_32BIT_VALUE }

  Color processing algorithms.
- enum BayerTileFormat {
  NONE,
  RGGB,
  GRBG,
  GBRG,
  BGGR,
  BT_FORCE_32BITS = FULL_32BIT_VALUE }

  Bayer tile formats.
- enum ImageFileFormat {
  FROM_FILE_EXT = -1,
  PGM,
  PPM,
  BMP,
  JPEG,
  JPEG2000,
  TIFF,
  PNG,
  RAW,
  IMAGE_FILE_FORMAT_FORCE_32BITS = FULL_32BIT_VALUE }

  File formats to be used for saving images to disk.

7.2.1 Detailed Description

7.2.2 Enumeration Type Documentation

7.2.2.1 BandwidthAllocation

```
enum BandwidthAllocation
```

Bandwidth allocation options for 1394 devices.

Enumerator

BANDWIDTH_ALLOCATION_OFF	Do not allocate bandwidth.
BANDWIDTH_ALLOCATION_ON	Allocate bandwidth. This is the default setting.
BANDWIDTH_ALLOCATION_UNSUPPORTED	Bandwidth allocation is not supported by either the camera or operating system.
BANDWIDTH_ALLOCATION_UNSPECIFIED	Not specified. This leaves the current setting unchanged.
BANDWIDTH_ALLOCATION_FORCE_32BITS	

7.2.2.2 BayerTileFormat

```
enum BayerTileFormat
```

Bayer tile formats.

Enumerator

NONE	No bayer tile format.
RGGB	Red-Green-Green-Blue.
GRBG	Green-Red-Blue-Green.
GBRG	Green-Blue-Red-Green.
BGGR	Blue-Green-Green-Red.
BT_FORCE_32BITS	

7.2.2.3 BusCallbackType

```
enum BusCallbackType
```

The type of bus callback to register a callback function for.

Enumerator

BUS_RESET	Register for all bus events.
ARRIVAL	Register for arrivals only.
REMOVAL	Register for removals only.
CALLBACK_TYPE_FORCE_32BITS	

7.2.2.4 BusSpeed

```
enum BusSpeed
```

Bus speeds.

Enumerator

BUSSPEED_S100	100Mbits/sec.
BUSSPEED_S200	200Mbits/sec.
BUSSPEED_S400	400Mbits/sec.
BUSSPEED_S480	480Mbits/sec. Only for USB2 cameras.
BUSSPEED_S800	800Mbits/sec.
BUSSPEED_S1600	1600Mbits/sec.
BUSSPEED_S3200	3200Mbits/sec.
BUSSPEED_S5000	5000Mbits/sec. Only for USB3 cameras.
BUSSPEED_10BASE_T	10Base-T. Only for GigE Vision cameras.
BUSSPEED_100BASE_T	100Base-T. Only for GigE Vision cameras.
BUSSPEED_1000BASE_T	1000Base-T (Gigabit Ethernet). Only for GigE Vision cameras.
BUSSPEED_10000BASE_T	10000Base-T. Only for GigE Vision cameras.
BUSSPEED_S_FASTEST	The fastest speed available.
BUSSPEED_ANY	Any speed that is available.
BUSSPEED_SPEED_UNKNOWN	Unknown bus speed.
BUSSPEED_FORCE_32BITS	

7.2.2.5 ColorProcessingAlgorithm

```
enum ColorProcessingAlgorithm
```

Color processing algorithms.

Please refer to our knowledge base at article at http://www.ptgrey.com/support/kb/index.↩asp?a=4&q=33 for complete details for each algorithm.

Enumerator

DEFAULT	Default method.
NO_COLOR_PROCESSING	No color processing.
NEAREST_NEIGHBOR	Fastest but lowest quality. Equivalent to FLYCAPTURE_NEAREST_NEIGHBOR_FAST in FlyCapture.
EDGE_SENSING	Weights surrounding pixels based on localized edge orientation.
HQ_LINEAR	Well-balanced speed and quality.
RIGOROUS	Slowest but produces good results.
IPP	Multithreaded with similar results to edge sensing.
DIRECTIONAL_FILTER	Best quality but much faster than rigorous.
WEIGHTED_DIRECTIONAL_FILTER	Weighted pixel average from different directions.
COLOR_PROCESSING_ALGORITHM_FORCE_↩32BITS	

7.2.2.6 DriverType

```
enum DriverType
```

Types of low level drivers that flycapture uses.

Enumerator

DRIVER_1394_CAM	PGRCam.sys.
DRIVER_1394_PRO	PGR1394.sys.
DRIVER_1394_JUJU	firewire_core.
DRIVER_1394_VIDEO1394	video1394.
DRIVER_1394_RAW1394	raw1394.
DRIVER_USB_NONE	No usb driver used just BSD stack. (Linux only)
DRIVER_USB_CAM	PGRUsbCam.sys.
DRIVER_USB3_PRO	PGRXHCI.sys.
DRIVER_GIGE_NONE	no gige drivers used,MS/BSD stack.
DRIVER_GIGE_FILTER	PGRGigE.sys.
DRIVER_GIGE_PRO	PGRGigEPro.sys.
DRIVER_GIGE_LWF	PgrLwf.sys.
DRIVER_UNKNOWN	Unknown driver type.
DRIVER_FORCE_32BITS	

7.2.2.7 ErrorType

```
enum ErrorType
```

The error types returned by functions.

Enumerator

PGRERROR_UNDEFINED	Undefined.
PGRERROR_OK	Function returned with no errors.
PGRERROR_FAILED	General failure.
PGRERROR_NOT_IMPLEMENTED	Function has not been implemented.
PGRERROR_FAILED_BUS_MASTER_CONNECTION	Could not connect to Bus Master.
PGRERROR_NOT_CONNECTED	Camera has not been connected.
PGRERROR_INIT_FAILED	Initialization failed.
PGRERROR_NOT_INTITIALIZED	Camera has not been initialized.
PGRERROR_INVALID_PARAMETER	Invalid parameter passed to function.
PGRERROR_INVALID_SETTINGS	Setting set to camera is invalid.
PGRERROR_INVALID_BUS_MANAGER	Invalid Bus Manager object.
PGRERROR_MEMORY_ALLOCATION_FAILED	Could not allocate memory.
PGRERROR_LOW_LEVEL_FAILURE	Low level error.
PGRERROR_NOT_FOUND	Device not found.

Enumerator

PGRERROR_FAILED_GUID	GUID failure.
PGRERROR_INVALID_PACKET_SIZE	Packet size set to camera is invalid.
PGRERROR_INVALID_MODE	Invalid mode has been passed to function.
PGRERROR_NOT_IN_FORMAT7	Error due to not being in Format7.
PGRERROR_NOT_SUPPORTED	This feature is unsupported.
PGRERROR_TIMEOUT	Timeout error.
PGRERROR_BUS_MASTER_FAILED	Bus Master Failure.
PGRERROR_INVALID_GENERATION	Generation Count Mismatch.
PGRERROR_LUT_FAILED	Look Up Table failure.
PGRERROR_IIDC_FAILED	IIDC failure.
PGRERROR_STROBE_FAILED	Strobe failure.
PGRERROR_TRIGGER_FAILED	Trigger failure.
PGRERROR_PROPERTY_FAILED	Property failure.
PGRERROR_PROPERTY_NOT_PRESENT	Property is not present.
PGRERROR_REGISTER_FAILED	Register access failed.
PGRERROR_READ_REGISTER_FAILED	Register read failed.
PGRERROR_WRITE_REGISTER_FAILED	Register write failed.
PGRERROR_ISOCH_FAILED	Isochronous failure.
PGRERROR_ISOCH_ALREADY_STARTED	Isochronous transfer has already been started.
PGRERROR_ISOCH_NOT_STARTED	Isochronous transfer has not been started.
PGRERROR_ISOCH_START_FAILED	Isochronous start failed.
PGRERROR_ISOCH_RETRIEVE_BUFFER_FAILED	Isochronous retrieve buffer failed.
PGRERROR_ISOCH_STOP_FAILED	Isochronous stop failed.
PGRERROR_ISOCH_SYNC_FAILED	Isochronous image synchronization failed.
PGRERROR_ISOCH_BANDWIDTH_EXCEEDED	Isochronous bandwidth exceeded.
PGRERROR_IMAGE_CONVERSION_FAILED	Image conversion failed.
PGRERROR_IMAGE_LIBRARY_FAILURE	Image library failure.
PGRERROR_BUFFER_TOO_SMALL	Buffer is too small.
PGRERROR_IMAGE_CONSISTENCY_ERROR	There is an image consistency error.
PGRERROR_INCOMPATIBLE_DRIVER	The installed driver is not compatible with the library.
PGRERROR_FORCE_32BITS	

7.2.2.8 FrameRate

```
enum FrameRate
```

Frame rates in frames per second.

Enumerator

FRAMERATE_1_875	1.875 fps.
FRAMERATE_3_75	3.75 fps.
FRAMERATE_7_5	7.5 fps.
FRAMERATE_15	15 fps.
FRAMERATE_30	30 fps.

Enumerator

FRAMERATE_60	60 fps.
FRAMERATE_120	120 fps.
FRAMERATE_240	240 fps.
FRAMERATE_FORMAT7	Custom frame rate for Format7 functionality.
NUM_FRAMERATES	Number of possible camera frame rates.
FRAMERATE_FORCE_32BITS	

7.2.2.9 GrabMode

```
enum GrabMode
```

The grab strategy employed during image transfer.

This type controls how images that stream off the camera accumulate in a user buffer for handling.

Enumerator

DROP_FRAMES	Grabs the newest image in the user buffer each time the RetrieveBuffer() function is called. Older images are dropped instead of accumulating in the user buffer. Grabbing blocks if the camera has not finished transmitting the next available image. If the camera is transmitting images faster than the application can grab them, images may be dropped and only the most recent image is stored for grabbing. Note that this mode is the equivalent of flycaptureLockLatest in earlier versions of the FlyCapture SDK.
BUFFER_FRAMES	Images accumulate in the user buffer, and the oldest image is grabbed for handling before being discarded. This member can be used to guarantee that each image is seen. However, image processing time must not exceed transmission time from the camera to the buffer. Grabbing blocks if the camera has not finished transmitting the next available image. The buffer size is controlled by the numBuffers parameter in the FC2Config struct. Note that this mode is the equivalent of flycaptureLockNext in earlier versions of the FlyCapture SDK.
UNSPECIFIED_GRAB_MODE	Unspecified grab mode.
GRAB_MODE_FORCE_32BITS	

7.2.2.10 GrabTimeout

```
enum GrabTimeout
```

Timeout options for grabbing images.

Enumerator

TIMEOUT_NONE	Non-blocking wait.
TIMEOUT_INFINITE	Wait indefinitely.
TIMEOUT_UNSPECIFIED	Unspecified timeout setting.
GRAB_TIMEOUT_FORCE_32BITS	

7.2.2.11 ImageFileFormat

```
enum ImageFileFormat
```

File formats to be used for saving images to disk.

Enumerator

FROM_FILE_EXT	Determine file format from file extension.
PGM	Portable gray map.
PPM	Portable pixmap.
BMP	Bitmap.
JPEG	JPEG.
JPEG2000	JPEG 2000.
TIFF	Tagged image file format.
PNG	Portable network graphics.
RAW	Raw data.
IMAGE_FILE_FORMAT_FORCE_32BITS	

7.2.2.12 InterfaceType

```
enum InterfaceType
```

Interfaces that a camera may use to communicate with a host.

Enumerator

INTERFACE_IEEE1394	IEEE-1394 (Includes 1394a and 1394b).
INTERFACE_USB2	USB 2.0.
INTERFACE_USB3	USB 3.0.
INTERFACE_GIGE	GigE.
INTERFACE_UNKNOWN	Unknown interface.
INTERFACE_TYPE_FORCE_32BITS	

7.2.2.13 Mode

```
enum Mode
```

Camera modes for DCAM formats as well as Format7.

Enumerator

MODE_0	
MODE_1	
MODE_2	
MODE_3	
MODE_4	
MODE_5	
MODE_6	
MODE_7	
MODE_8	
MODE_9	
MODE_10	
MODE_11	
MODE_12	
MODE_13	
MODE_14	
MODE_15	
MODE_16	
MODE_17	
MODE_18	
MODE_19	
MODE_20	
MODE_21	
MODE_22	
MODE_23	
MODE_24	
MODE_25	
MODE_26	
MODE_27	
MODE_28	
MODE_29	
MODE_30	
MODE_31	
NUM_MODES	Number of modes.
MODE_FORCE_32BITS	

7.2.2.14 PCIeBusSpeed

```
enum PCIeBusSpeed
```

Enumerator

PCIE_BUSSPEED_2_5	
PCIE_BUSSPEED_5_0	2.5 Gb/s
PCIE_BUSSPEED_UNKNOWN	5.0 Gb/s
PCIE_BUSSPEED_FORCE_32BITS	Speed is unknown.

7.2.2.15 PixelFormat

```
enum PixelFormat
```

Pixel formats available for Format7 modes.

Enumerator

PIXEL_FORMAT_MONO8	8 bits of mono information.
PIXEL_FORMAT_411YUV8	YUV 4:1:1.
PIXEL_FORMAT_422YUV8	YUV 4:2:2.
PIXEL_FORMAT_444YUV8	YUV 4:4:4.
PIXEL_FORMAT_RGB8	R = G = B = 8 bits.
PIXEL_FORMAT_MONO16	16 bits of mono information.
PIXEL_FORMAT_RGB16	R = G = B = 16 bits.
PIXEL_FORMAT_S_MONO16	16 bits of signed mono information.
PIXEL_FORMAT_S_RGB16	R = G = B = 16 bits signed.
PIXEL_FORMAT_RAW8	8 bit raw data output of sensor.
PIXEL_FORMAT_RAW16	16 bit raw data output of sensor.
PIXEL_FORMAT_MONO12	12 bits of mono information.
PIXEL_FORMAT_RAW12	12 bit raw data output of sensor.
PIXEL_FORMAT_BGR	24 bit BGR.
PIXEL_FORMAT_BGRU	32 bit BGRU.
PIXEL_FORMAT_RGB	24 bit RGB.
PIXEL_FORMAT_RGBU	32 bit RGBU.
PIXEL_FORMAT_BGR16	R = G = B = 16 bits.
PIXEL_FORMAT_BGRU16	64 bit BGRU.
PIXEL_FORMAT_422YUV8_JPEG	JPEG compressed stream.
NUM_PIXEL_FORMATS	Number of pixel formats.
UNSPECIFIED_PIXEL_FORMAT	Unspecified pixel format.

7.2.2.16 PropertyType

```
enum PropertyType
```

Camera properties.

Not all properties may be supported, depending on the camera model.

Enumerator

BRIGHTNESS	Brightness.
AUTO_EXPOSURE	Auto exposure.
SHARPNESS	Sharpness.
WHITE_BALANCE	White balance.

Enumerator

HUE	Hue.
SATURATION	Saturation.
GAMMA	Gamma.
IRIS	Iris.
FOCUS	Focus.
ZOOM	Zoom.
PAN	Pan.
TILT	Tilt.
SHUTTER	Shutter.
GAIN	Gain.
TRIGGER_MODE	Trigger mode.
TRIGGER_DELAY	Trigger delay.
FRAME_RATE	Frame rate.
TEMPERATURE	Temperature.
UNSPECIFIED_PROPERTY_TYPE	Unspecified property type.
PROPERTY_TYPE_FORCE_32BITS	

7.2.2.17 VideoMode

```
enum VideoMode
```

DCAM video modes.

Enumerator

VIDEOMODE_160x120YUV444	160x120 YUV444.
VIDEOMODE_320x240YUV422	320x240 YUV422.
VIDEOMODE_640x480YUV411	640x480 YUV411.
VIDEOMODE_640x480YUV422	640x480 YUV422.
VIDEOMODE_640x480RGB	640x480 24-bit RGB.
VIDEOMODE_640x480Y8	640x480 8-bit.
VIDEOMODE_640x480Y16	640x480 16-bit.
VIDEOMODE_800x600YUV422	800x600 YUV422.
VIDEOMODE_800x600RGB	800x600 RGB.
VIDEOMODE_800x600Y8	800x600 8-bit.
VIDEOMODE_800x600Y16	800x600 16-bit.
VIDEOMODE_1024x768YUV422	1024x768 YUV422.
VIDEOMODE_1024x768RGB	1024x768 RGB.
VIDEOMODE_1024x768Y8	1024x768 8-bit.
VIDEOMODE_1024x768Y16	1024x768 16-bit.
VIDEOMODE_1280x960YUV422	1280x960 YUV422.
VIDEOMODE_1280x960RGB	1280x960 RGB.
VIDEOMODE_1280x960Y8	1280x960 8-bit.
VIDEOMODE_1280x960Y16	1280x960 16-bit.
VIDEOMODE_1600x1200YUV422	1600x1200 YUV422.
VIDEOMODE_1600x1200RGB	1600x1200 RGB.

Enumerator

VIDEOMODE_1600x1200Y8	1600x1200 8-bit.
VIDEOMODE_1600x1200Y16	1600x1200 16-bit.
VIDEOMODE_FORMAT7	Custom video mode for Format7 functionality.
NUM_VIDEOMODES	Number of possible video modes.
VIDEOMODE_FORCE_32BITS	

7.3 GigE specific enumerations

These enumerations are specific to GigE camera operation only.

Enumerations

- enum GigEPropertyType {
  HEARTBEAT,
  HEARTBEAT_TIMEOUT,
  PACKET_SIZE,
  PACKET_DELAY }

  Possible properties that can be queried from the camera.

7.3.1 Detailed Description

These enumerations are specific to GigE camera operation only.

7.3.2 Enumeration Type Documentation

7.3.2.1 GigEPropertyType

```
enum GigEPropertyType
```

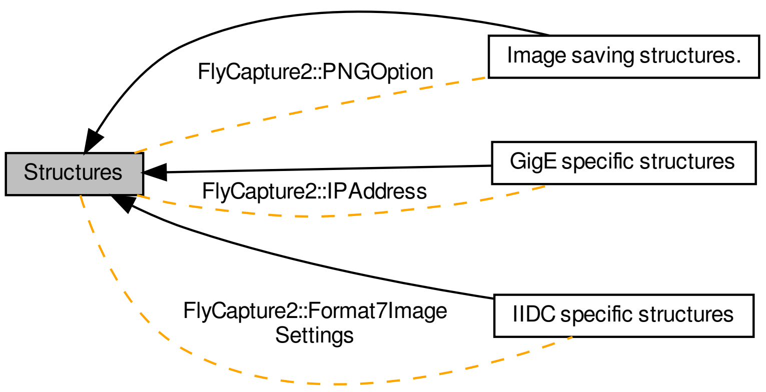
Possible properties that can be queried from the camera.

Enumerator

HEARTBEAT	
HEARTBEAT_TIMEOUT	
PACKET_SIZE	
PACKET_DELAY	

7.4 Structures

Collaboration diagram for Structures:



Modules

- GigE specific structures

  These structures are specific to GigE camera operation only.
- IIDC specific structures

  These structures are specific to IIDC camera operation only.
- Image saving structures.

  These structures define various parameters used for saving images.

Classes

- struct FC2Version

  The current version of the library.
- class PGRGuid

  A GUID to the camera.
- struct IPAddress

  IPv4 address.
- struct Format7ImageSettings

  Format 7 image settings.
- struct FC2Config

  Configuration for a camera.
- struct PropertyInfo

  Information about a specific camera property.
- struct Property

  A specific camera property.
- struct TriggerModeInfo

  Information about a camera trigger property.
- struct TriggerMode

A camera trigger.
- struct StrobeInfo

  A camera strobe property.
- struct StrobeControl

  A camera strobe.
- struct TimeStamp

  Timestamp information.
- struct ConfigROM

  Camera configuration ROM.
- struct CameraInfo

  Camera information.
- struct EmbeddedImageInfoProperty

  Properties of a single embedded image info property.
- struct EmbeddedImageInfo

  Properties of the possible embedded image information.
- struct ImageMetadata

  Metadata related to an image.
- struct LUTData

  Information about the camera's look up table.
- struct CameraStats

  Camera diagnostic information.
- struct PNGOption

  Options for saving PNG images.

Typedefs

- typedef PropertyInfo TriggerDelayInfo

  The TriggerDelayInfo structure is identical to PropertyInfo.
- typedef Property TriggerDelay

  The TriggerDelay structure is identical to Property.

7.4.1 Detailed Description

7.4.2 Typedef Documentation

7.4.2.1 TriggerDelay

```
typedef Property TriggerDelay
```

The TriggerDelay structure is identical to Property.

7.4.2.2 TriggerDelayInfo

```
typedef PropertyInfo TriggerDelayInfo
```

The TriggerDelayInfo structure is identical to PropertyInfo.

7.5 GigE specific structures

These structures are specific to GigE camera operation only.

Collaboration diagram for GigE specific structures:

GigE specific structures
FlyCapture2::IPAddress
Structures

Classes

- struct IPAddress

  IPv4 address.
- struct MACAddress

  MAC address.
- struct GigEProperty

  A GigE property.
- struct GigEStreamChannel

  Information about a single GigE stream channel.
- struct GigEConfig

  Configuration for a GigE camera.
- struct GigEImageSettingsInfo

  Format 7 information for a single mode.
- struct GigEImageSettings

  Image settings for a GigE camera.

7.5.1 Detailed Description

These structures are specific to GigE camera operation only.

7.6 IIDC specific structures

These structures are specific to IIDC camera operation only.

Collaboration diagram for IIDC specific structures:

IIDC specific structures
FlyCapture2::Format7Image Settings
Structures

Classes

- struct Format7ImageSettings

  Format 7 image settings.
- struct Format7Info

  Format 7 information for a single mode.
- struct Format7PacketInfo

  Format 7 packet information.

7.6.1 Detailed Description

These structures are specific to IIDC camera operation only.

7.7 Image saving structures.

These structures define various parameters used for saving images.

Collaboration diagram for Image saving structures.:

Classes

- struct PNGOption

    Options for saving PNG images.
- struct PPMOption

    Options for saving PPM images.
- struct PGMOption

    Options for saving PGM images.
- struct TIFFOption

    Options for saving TIFF images.
- struct JPEGOption

    Options for saving JPEG image.
- struct JPG2Option

    Options for saving JPEG2000 image.
- struct BMPOption

    Options for saving Bitmap image.
- struct EventOptions

    Options for enabling device event registration.
- struct EventCallbackData

Typedefs

- typedef void(∗ CameraEventCallback) (void ∗data)

7.7.1 Detailed Description

These structures define various parameters used for saving images.

7.7.2 Typedef Documentation

7.7.2.1 CameraEventCallback

```
typedef void(* CameraEventCallback) (void *data)
```

7.8 Video saving structures.

These structures define various parameters used for saving videos.

Classes

- struct MJPGOption

  Options for saving MJPG files.
- struct H264Option

  Options for saving H264 files.
- struct AVIOption

  Options for saving AVI files.

7.8.1 Detailed Description

These structures define various parameters used for saving videos.

Chapter 8

Namespace Documentation

8.1 FlyCap3CameraControl Namespace Reference

Classes

- class FlyCapture3ApiGuiWrapper

8.2 FlyCapture2 Namespace Reference

Classes

- struct AVIOption

  Options for saving AVI files.
- struct BMPOption

  Options for saving Bitmap image.
- class BusManager

  The BusManager class provides the functionality for the user to get an PGRGuid for a desired camera or device easily.
- class Camera

  The Camera object represents a physical camera that uses the IIDC register set.
- class CameraBase

  The CameraBase class is an abstract base class that defines a general interface to a camera.
- class CameraControlDlg

  The CameraControlDlg object represents a dialog that provides a graphical interface to a specified camera.
- struct CameraInfo

  Camera information.
- class CameraSelectionDlg

  The CameraSelectionDlg object represents a dialog that provides a graphical interface that lists the number of cameras available to the library.
- struct CameraStats

  Camera diagnostic information.
- struct ConfigROM

  Camera configuration ROM.
- struct EmbeddedImageInfo

  Properties of the possible embedded image information.

- struct EmbeddedImageInfoProperty

  Properties of a single embedded image info property.
- class Error

  The Error object represents an error that is returned from the library.
- struct EventCallbackData
- struct EventOptions

  Options for enabling device event registration.
- struct FC2Config

  Configuration for a camera.
- struct FC2Version

  The current version of the library.
- class FlyCapture2Video

  The FlyCapture2Video class provides the functionality for the user to record images to an AVI file.
- struct Format7ImageSettings

  Format 7 image settings.
- struct Format7Info

  Format 7 information for a single mode.
- struct Format7PacketInfo

  Format 7 packet information.
- class GCCamera
- class GigECamera

  The GigECamera object represents a physical Gigabit Ethernet camera.
- struct GigEConfig

  Configuration for a GigE camera.
- struct GigEImageSettings

  Image settings for a GigE camera.
- struct GigEImageSettingsInfo

  Format 7 information for a single mode.
- struct GigEProperty

  A GigE property.
- struct GigEStreamChannel

  Information about a single GigE stream channel.
- struct H264Option

  Options for saving H264 files.
- class Image

  The Image class is used to retrieve images from a camera, convert between multiple pixel formats and save images to disk.
- struct ImageMetadata

  Metadata related to an image.
- class ImageStatistics

  The ImageStatistics object represents image statistics for an image.
- class Internal
- struct IPAddress

  IPv4 address.
- struct JPEGOption

  Options for saving JPEG image.
- struct JPG2Option

  Options for saving JPEG2000 image.
- struct LUTData

  Information about the camera's look up table.
- struct MACAddress

MAC address.

- struct MJPGOption

  Options for saving MJPG files.
- class NodeMap
- struct PGMOption

  Options for saving PGM images.
- class PGRGuid

  A GUID to the camera.
- struct PNGOption

  Options for saving PNG images.
- struct PPMOption

  Options for saving PPM images.
- struct Property

  A specific camera property.
- struct PropertyInfo

  Information about a specific camera property.
- struct StrobeControl

  A camera strobe.
- struct StrobeInfo

  A camera strobe property.
- struct SystemInfo

  Description of the system.
- struct TIFFOption

  Options for saving TIFF images.
- struct TimeStamp

  Timestamp information.
- class TopologyNode

  The TopologyNode class contains topology information that can be used to generate a tree structure of all cameras and devices connected to a computer.
- struct TriggerMode

  A camera trigger.
- struct TriggerModeInfo

  Information about a camera trigger property.
- class Utilities

  The Utility class is generally used to query for general system information such as operating system, available memory etc.

Typedefs

- typedef void(∗ BusEventCallback) (void ∗pParameter, unsigned int serialNumber)

  Bus event callback function prototype.
- typedef void ∗ CallbackHandle

  Handle that is returned when registering a callback.
- typedef void(∗ ImageEventCallback) (class Image ∗pImage, const void ∗pCallbackData)

  Image event callback function prototype.
- typedef PropertyInfo TriggerDelayInfo

  The TriggerDelayInfo structure is identical to PropertyInfo.
- typedef Property TriggerDelay

  The TriggerDelay structure is identical to Property.
- typedef void(∗ CameraEventCallback) (void ∗data)
- typedef void(∗ AsyncCommandCallback) (class Error retError, void ∗pUserData)

  Async command callback function prototype.

Enumerations

- enum ErrorType {
  PGRERROR_UNDEFINED = -1,
  PGRERROR_OK,
  PGRERROR_FAILED,
  PGRERROR_NOT_IMPLEMENTED,
  PGRERROR_FAILED_BUS_MASTER_CONNECTION,
  PGRERROR_NOT_CONNECTED,
  PGRERROR_INIT_FAILED,
  PGRERROR_NOT_INTITIALIZED,
  PGRERROR_INVALID_PARAMETER,
  PGRERROR_INVALID_SETTINGS,
  PGRERROR_INVALID_BUS_MANAGER,
  PGRERROR_MEMORY_ALLOCATION_FAILED,
  PGRERROR_LOW_LEVEL_FAILURE,
  PGRERROR_NOT_FOUND,
  PGRERROR_FAILED_GUID,
  PGRERROR_INVALID_PACKET_SIZE,
  PGRERROR_INVALID_MODE,
  PGRERROR_NOT_IN_FORMAT7,
  PGRERROR_NOT_SUPPORTED,
  PGRERROR_TIMEOUT,
  PGRERROR_BUS_MASTER_FAILED,
  PGRERROR_INVALID_GENERATION,
  PGRERROR_LUT_FAILED,
  PGRERROR_IIDC_FAILED,
  PGRERROR_STROBE_FAILED,
  PGRERROR_TRIGGER_FAILED,
  PGRERROR_PROPERTY_FAILED,
  PGRERROR_PROPERTY_NOT_PRESENT,
  PGRERROR_REGISTER_FAILED,
  PGRERROR_READ_REGISTER_FAILED,
  PGRERROR_WRITE_REGISTER_FAILED,
  PGRERROR_ISOCH_FAILED,
  PGRERROR_ISOCH_ALREADY_STARTED,
  PGRERROR_ISOCH_NOT_STARTED,
  PGRERROR_ISOCH_START_FAILED,
  PGRERROR_ISOCH_RETRIEVE_BUFFER_FAILED,
  PGRERROR_ISOCH_STOP_FAILED,
  PGRERROR_ISOCH_SYNC_FAILED,
  PGRERROR_ISOCH_BANDWIDTH_EXCEEDED,
  PGRERROR_IMAGE_CONVERSION_FAILED,
  PGRERROR_IMAGE_LIBRARY_FAILURE,
  PGRERROR_BUFFER_TOO_SMALL,
  PGRERROR_IMAGE_CONSISTENCY_ERROR,
  PGRERROR_INCOMPATIBLE_DRIVER,
  PGRERROR_FORCE_32BITS = FULL_32BIT_VALUE }

  The error types returned by functions.
- enum BusCallbackType {
  BUS_RESET,
  ARRIVAL,
  REMOVAL,
  CALLBACK_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

  The type of bus callback to register a callback function for.
- enum GrabMode {
  DROP_FRAMES,
  BUFFER_FRAMES,

UNSPECIFIED_GRAB_MODE,
GRAB_MODE_FORCE_32BITS = FULL_32BIT_VALUE }

The grab strategy employed during image transfer.

- enum GrabTimeout {
TIMEOUT_NONE = 0,
TIMEOUT_INFINITE = -1,
TIMEOUT_UNSPECIFIED = -2,
GRAB_TIMEOUT_FORCE_32BITS = FULL_32BIT_VALUE }

Timeout options for grabbing images.

- enum BandwidthAllocation {
BANDWIDTH_ALLOCATION_OFF = 0,
BANDWIDTH_ALLOCATION_ON = 1,
BANDWIDTH_ALLOCATION_UNSUPPORTED = 2,
BANDWIDTH_ALLOCATION_UNSPECIFIED = 3,
BANDWIDTH_ALLOCATION_FORCE_32BITS = FULL_32BIT_VALUE }

Bandwidth allocation options for 1394 devices.

- enum InterfaceType {
INTERFACE_IEEE1394,
INTERFACE_USB2,
INTERFACE_USB3,
INTERFACE_GIGE,
INTERFACE_UNKNOWN,
INTERFACE_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

Interfaces that a camera may use to communicate with a host.

- enum PropertyType {
BRIGHTNESS,
AUTO_EXPOSURE,
SHARPNESS,
WHITE_BALANCE,
HUE,
SATURATION,
GAMMA,
IRIS,
FOCUS,
ZOOM,
PAN,
TILT,
SHUTTER,
GAIN,
TRIGGER_MODE,
TRIGGER_DELAY,
FRAME_RATE,
TEMPERATURE,
UNSPECIFIED_PROPERTY_TYPE,
PROPERTY_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

Camera properties.

- enum FrameRate {
FRAMERATE_1_875,
FRAMERATE_3_75,
FRAMERATE_7_5,
FRAMERATE_15,
FRAMERATE_30,
FRAMERATE_60,
FRAMERATE_120,
FRAMERATE_240,
FRAMERATE_FORMAT7,

NUM_FRAMERATES,
FRAMERATE_FORCE_32BITS = FULL_32BIT_VALUE }

Frame rates in frames per second.

- enum VideoMode {
VIDEOMODE_160x120YUV444,
VIDEOMODE_320x240YUV422,
VIDEOMODE_640x480YUV411,
VIDEOMODE_640x480YUV422,
VIDEOMODE_640x480RGB,
VIDEOMODE_640x480Y8,
VIDEOMODE_640x480Y16,
VIDEOMODE_800x600YUV422,
VIDEOMODE_800x600RGB,
VIDEOMODE_800x600Y8,
VIDEOMODE_800x600Y16,
VIDEOMODE_1024x768YUV422,
VIDEOMODE_1024x768RGB,
VIDEOMODE_1024x768Y8,
VIDEOMODE_1024x768Y16,
VIDEOMODE_1280x960YUV422,
VIDEOMODE_1280x960RGB,
VIDEOMODE_1280x960Y8,
VIDEOMODE_1280x960Y16,
VIDEOMODE_1600x1200YUV422,
VIDEOMODE_1600x1200RGB,
VIDEOMODE_1600x1200Y8,
VIDEOMODE_1600x1200Y16,
VIDEOMODE_FORMAT7,
NUM_VIDEOMODES,
VIDEOMODE_FORCE_32BITS = FULL_32BIT_VALUE }

DCAM video modes.

- enum Mode {
MODE_0 = 0,
MODE_1,
MODE_2,
MODE_3,
MODE_4,
MODE_5,
MODE_6,
MODE_7,
MODE_8,
MODE_9,
MODE_10,
MODE_11,
MODE_12,
MODE_13,
MODE_14,
MODE_15,
MODE_16,
MODE_17,
MODE_18,
MODE_19,
MODE_20,
MODE_21,
MODE_22,
MODE_23,
MODE_24,
MODE_25,

MODE_26,
MODE_27,
MODE_28,
MODE_29,
MODE_30,
MODE_31,
NUM_MODES,
MODE_FORCE_32BITS = FULL_32BIT_VALUE }

Camera modes for DCAM formats as well as Format7.

- enum PixelFormat {
PIXEL_FORMAT_MONO8 = 0x80000000,
PIXEL_FORMAT_411YUV8 = 0x40000000,
PIXEL_FORMAT_422YUV8 = 0x20000000,
PIXEL_FORMAT_444YUV8 = 0x10000000,
PIXEL_FORMAT_RGB8 = 0x08000000,
PIXEL_FORMAT_MONO16 = 0x04000000,
PIXEL_FORMAT_RGB16 = 0x02000000,
PIXEL_FORMAT_S_MONO16 = 0x01000000,
PIXEL_FORMAT_S_RGB16 = 0x00800000,
PIXEL_FORMAT_RAW8 = 0x00400000,
PIXEL_FORMAT_RAW16 = 0x00200000,
PIXEL_FORMAT_MONO12 = 0x00100000,
PIXEL_FORMAT_RAW12 = 0x00080000,
PIXEL_FORMAT_BGR = 0x80000008,
PIXEL_FORMAT_BGRU = 0x40000008,
PIXEL_FORMAT_RGB = PIXEL_FORMAT_RGB8,
PIXEL_FORMAT_RGBU = 0x40000002,
PIXEL_FORMAT_BGR16 = 0x02000001,
PIXEL_FORMAT_BGRU16 = 0x02000002,
PIXEL_FORMAT_422YUV8_JPEG = 0x40000001,
NUM_PIXEL_FORMATS = 20,
UNSPECIFIED_PIXEL_FORMAT = 0 }

Pixel formats available for Format7 modes.

- enum BusSpeed {
BUSSPEED_S100,
BUSSPEED_S200,
BUSSPEED_S400,
BUSSPEED_S480,
BUSSPEED_S800,
BUSSPEED_S1600,
BUSSPEED_S3200,
BUSSPEED_S5000,
BUSSPEED_10BASE_T,
BUSSPEED_100BASE_T,
BUSSPEED_1000BASE_T,
BUSSPEED_10000BASE_T,
BUSSPEED_S_FASTEST,
BUSSPEED_ANY,
BUSSPEED_SPEED_UNKNOWN = -1,
BUSSPEED_FORCE_32BITS = FULL_32BIT_VALUE }

Bus speeds.

- enum PCIeBusSpeed {
PCIE_BUSSPEED_2_5,
PCIE_BUSSPEED_5_0,
PCIE_BUSSPEED_UNKNOWN = -1,
PCIE_BUSSPEED_FORCE_32BITS = FULL_32BIT_VALUE }
- enum DriverType {
DRIVER_1394_CAM,

DRIVER_1394_PRO,
DRIVER_1394_JUJU,
DRIVER_1394_VIDEO1394,
DRIVER_1394_RAW1394,
DRIVER_USB_NONE,
DRIVER_USB_CAM,
DRIVER_USB3_PRO,
DRIVER_GIGE_NONE,
DRIVER_GIGE_FILTER,
DRIVER_GIGE_PRO,
DRIVER_GIGE_LWF,
DRIVER_UNKNOWN = -1,
DRIVER_FORCE_32BITS = FULL_32BIT_VALUE }

Types of low level drivers that flycapture uses.

- enum ColorProcessingAlgorithm {
DEFAULT,
NO_COLOR_PROCESSING,
NEAREST_NEIGHBOR,
EDGE_SENSING,
HQ_LINEAR,
RIGOROUS,
IPP,
DIRECTIONAL_FILTER,
WEIGHTED_DIRECTIONAL_FILTER,
COLOR_PROCESSING_ALGORITHM_FORCE_32BITS = FULL_32BIT_VALUE }

  Color processing algorithms.

- enum BayerTileFormat {
NONE,
RGGB,
GRBG,
GBRG,
BGGR,
BT_FORCE_32BITS = FULL_32BIT_VALUE }

  Bayer tile formats.

- enum ImageFileFormat {
FROM_FILE_EXT = -1,
PGM,
PPM,
BMP,
JPEG,
JPEG2000,
TIFF,
PNG,
RAW,
IMAGE_FILE_FORMAT_FORCE_32BITS = FULL_32BIT_VALUE }

  File formats to be used for saving images to disk.

- enum GigEPropertyType {
HEARTBEAT,
HEARTBEAT_TIMEOUT,
PACKET_SIZE,
PACKET_DELAY }

  Possible properties that can be queried from the camera.

- enum OSType {
WINDOWS_X86,
WINDOWS_X64,
LINUX_X86,
LINUX_X64,

MAC,
UNKNOWN_OS,
OSTYPE_FORCE_32BITS = FULL_32BIT_VALUE }

Possible operating systems.

- enum ByteOrder {
BYTE_ORDER_LITTLE_ENDIAN,
BYTE_ORDER_BIG_ENDIAN,
BYTE_ORDER_FORCE_32BITS = FULL_32BIT_VALUE }

  Possible byte orders.

Variables

- static const unsigned int sk_maxStringLength = 512

  The maximum length that is allocated for a string.
- static const unsigned int sk_maxNumPorts = 32

  The maximum number of ports one device can have.

8.2.1 Typedef Documentation

8.2.1.1 AsyncCommandCallback

```
typedef void(* AsyncCommandCallback) (class Error retError, void *pUserData)
```

Async command callback function prototype.

Defines the syntax of the async command function that is passed into LaunchCommandAsync().

8.2.1.2 BusEventCallback

```
typedef void(* BusEventCallback) (void *pParameter, unsigned int serialNumber)
```

Bus event callback function prototype.

Defines the syntax of the callback function that is passed into RegisterCallback() and UnregisterCallback(). It is recommended that minimal handling be performed in this callback as it will block internal processing of bus events until it returns.

8.2.1.3 CallbackHandle

```
typedef void* CallbackHandle
```

Handle that is returned when registering a callback.

It is required when unregistering the callback.

8.2.1.4 ImageEventCallback

```
typedef void(* ImageEventCallback) (class Image *pImage, const void *pCallbackData)
```

Image event callback function prototype.

Defines the syntax of the image callback function that is passed into StartCapture(). It is possible for this function to be called simultaneously. Therefore, users must make sure that code in the callback is thread safe.

8.2.2 Enumeration Type Documentation

8.2.2.1 ByteOrder

```
enum ByteOrder
```

Possible byte orders.

Enumerator

BYTE_ORDER_LITTLE_ENDIAN	
BYTE_ORDER_BIG_ENDIAN	
BYTE_ORDER_FORCE_32BITS	

8.2.2.2 OSType

```
enum OSType
```

Possible operating systems.

Enumerator

WINDOWS_X86	All Windows 32-bit variants.
WINDOWS_X64	All Windows 64-bit variants.
LINUX_X86	All Linux 32-bit variants.
LINUX_X64	All Linux 32-bit variants.
MAC	Mac OSX.
UNKNOWN_OS	Unknown operating system.
OSTYPE_FORCE_32BITS	

8.3 MultiSyncLibrary Namespace Reference

Classes

- class SyncManager

Enumerations

- enum PGRSyncError {
  PGRSyncError_OK = 0,
  PGRSyncError_FAILED,
  PGRSyncError_ALREADY_STARTED,
  PGRSyncError_ALREADY_STOPPED,
  PGRSyncError_CAMERA_NOT_FOUND,
  PGRSyncError_UNKNOWN_ERROR }
- enum PGRSyncMessage {
  PGRSyncMessage_OK = 0,
  PGRSyncMessage_STARTED,
  PGRSyncMessage_STOPPED,
  PGRSyncMessage_SYNCING,
  PGRSyncMessage_NOMASTER,
  PGRSyncMessage_THREAD_ERROR,
  PGRSyncMessage_DEVICE_ERROR,
  PGRSyncMessage_NOT_ENOUGH_DEVICES,
  PGRSyncMessage_BUS_RESET,
  PGRSyncMessage_NOT_INITIALIZED,
  PGRSyncMessage_UNKNOWN_ERROR }

8.3.1 Enumeration Type Documentation

8.3.1.1 PGRSyncError

`enum PGRSyncError`

Enumerator

PGRSyncError_OK	
PGRSyncError_FAILED	
PGRSyncError_ALREADY_STARTED	
PGRSyncError_ALREADY_STOPPED	
PGRSyncError_CAMERA_NOT_FOUND	
PGRSyncError_UNKNOWN_ERROR	

8.3.1.2 PGRSyncMessage

`enum PGRSyncMessage`

Enumerator

PGRSyncMessage_OK	
PGRSyncMessage_STARTED	
PGRSyncMessage_STOPPED	
PGRSyncMessage_SYNCING	
PGRSyncMessage_NOMASTER	
PGRSyncMessage_THREAD_ERROR	
PGRSyncMessage_DEVICE_ERROR	
PGRSyncMessage_NOT_ENOUGH_DEVICES	
PGRSyncMessage_BUS_RESET	
PGRSyncMessage_NOT_INITIALIZED	
PGRSyncMessage_UNKNOWN_ERROR	

Chapter 9

Class Documentation

9.1 AVIOption Struct Reference

Options for saving AVI files.

Public Member Functions

- AVIOption ()

Public Attributes

- float frameRate

  Frame rate of the stream.
- unsigned int reserved [256]

  Reserved for future use.

9.1.1 Detailed Description

Options for saving AVI files.

9.1.2 Constructor & Destructor Documentation

9.1.2.1 AVIOption()

```
AVIOption ( )  [inline]
```

9.1.3 Member Data Documentation

9.1.3.1 frameRate

```
float frameRate
```

Frame rate of the stream.

9.1.3.2 reserved

```
unsigned int reserved[256]
```

Reserved for future use.

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

- FlyCapture2VideoDefs.h

9.2 BMPOption Struct Reference

Options for saving Bitmap image.

Public Member Functions

- BMPOption ()

Public Attributes

- bool indexedColor_8bit
- unsigned int reserved [16]

  Reserved for future use.

9.2.1 Detailed Description

Options for saving Bitmap image.

9.2.2 Constructor & Destructor Documentation

9.2.2.1 BMPOption()

```
BMPOption ( )  [inline]
```

9.2.3 Member Data Documentation

9.2.3.1 indexedColor_8bit

```
bool indexedColor_8bit
```

9.2.3.2 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.3 BusManager Class Reference

The BusManager class provides the functionality for the user to get an PGRGuid for a desired camera or device easily.

Public Member Functions

- BusManager ()

  Default constructor.
- virtual ∼BusManager ()

  Default destructor.
- virtual Error FireBusReset (PGRGuid ∗pGuid)

  Fire a bus reset.
- virtual Error GetNumOfCameras (unsigned int ∗pNumCameras)

  Gets the number of cameras attached to the PC.
- virtual Error GetCameraFromIPAddress (IPAddress ipAddress, PGRGuid ∗pGuid)

  Gets the PGRGuid for a camera with the specified IPv4 address.
- virtual Error GetCameraFromIndex (unsigned int index, PGRGuid ∗pGuid)

  Gets the PGRGuid for a camera on the PC.
- virtual Error GetCameraFromSerialNumber (unsigned int serialNumber, PGRGuid ∗pGuid)

  Gets the PGRGuid for a camera on the PC.
- virtual Error GetCameraSerialNumberFromIndex (unsigned int index, unsigned int ∗pSerialNumber)

Gets the serial number of the camera with the specified index.

- virtual Error GetInterfaceTypeFromGuid (PGRGuid ∗pGuid, InterfaceType ∗pInterfaceType)

  Gets the interface type associated with a PGRGuid.
- virtual Error GetNumOfDevices (unsigned int ∗pNumDevices)

  Gets the number of devices.
- virtual Error GetDeviceFromIndex (unsigned int index, PGRGuid ∗pGuid)

  Gets the PGRGuid for a device.
- virtual Error ReadPhyRegister (PGRGuid guid, unsigned int page, unsigned int port, unsigned int address, unsigned int ∗pValue)

  Read a phy register on the specified device.
- virtual Error WritePhyRegister (PGRGuid guid, unsigned int page, unsigned int port, unsigned int address, unsigned int value)

  Write a phy register on the specified device.
- virtual Error GetUsbLinkInfo (PGRGuid guid, unsigned int ∗pValue)

  Read usb link info for the port that the specified device is connected to.
- virtual Error GetUsbPortStatus (PGRGuid guid, unsigned int ∗pValue)

  Read usb port status for the port that the specified device is connected to.
- virtual Error GetTopology (TopologyNode ∗pNode)

  Gets the topology information for the PC.
- virtual Error RegisterCallback (BusEventCallback busEventCallback, BusCallbackType callbackType, void ∗pParameter, CallbackHandle ∗pCallbackHandle)

  Register a callback function that will be called when the specified callback event occurs.
- virtual Error UnregisterCallback (CallbackHandle callbackHandle)

  Unregister a callback function.
- virtual Error RescanBus ()

  Force a rescan of the buses.
- Error IsCameraControlable (PGRGuid ∗pGuid, bool ∗pControlable)

  Query CCP status on camera with corresponding PGRGuid.

Static Public Member Functions

- static Error ForceIPAddressToCamera (MACAddress macAddress, IPAddress ipAddress, IPAddress subnetMask, IPAddress defaultGateway)

  Force the camera with the specific MAC address to the specified IP address, subnet mask and default gateway.
- static Error ForceAllIPAddressesAutomatically ()

  Force all cameras on the network to be assigned sequential IP addresses on the same subnet as the netowrk adapters that they are connected to.
- static Error ForceAllIPAddressesAutomatically (unsigned int serialNumber)

  Force a camera on the network to be assigned an IP address on the same subnet as the netowrk adapters that it is connected to.
- static Error DiscoverGigECameras (CameraInfo ∗gigECameras, unsigned int ∗arraySize)

  Discover all cameras connected to the network even if they reside on a different subnet.

9.3.1 Detailed Description

The BusManager class provides the functionality for the user to get an PGRGuid for a desired camera or device easily.

Once the camera or device token is found, it can then be used to connect to the camera or device through the camera class or device class. In addition, the BusManager class provides the ability to be notified when a camera or device is added or removed or some event occurs on the PC.

9.3.2 Constructor & Destructor Documentation

9.3.2.1 BusManager()

```
BusManager ( )
```

Default constructor.

9.3.2.2 ∼BusManager()

```
virtual ∼BusManager ( )  [virtual]
```

Default destructor.

9.3.3 Member Function Documentation

9.3.3.1 DiscoverGigECameras()

```
static Error DiscoverGigECameras (
             CameraInfo * gigECameras,
             unsigned int * arraySize )  [static]
```

Discover all cameras connected to the network even if they reside on a different subnet.

This is useful in situations where GigE Vision cameras are using IP addresses in a subnet different from the host's subnet. After discovering the camera, it is easy to use ForceIPAddressToCamera() to set a different IP configuration.

Parameters

gigECameras	Pointer to an array of CameraInfo structures.
arraySize	Size of the array. Number of discovered cameras is returned in the same value.

Returns

An Error indicating the success or failure of the function. If the error is PGRERROR_BUFFER_TOO_SMALL then arraySize will contain the minimum size needed for gigECameras array.

9.3.3.2 FireBusReset()

```
virtual Error FireBusReset (
            PGRGuid * pGuid )  [virtual]
```

Fire a bus reset.

The actual bus reset is only fired for the specified 1394 bus, but it will effectively cause a global bus reset for the library.

Parameters

pGuid	PGRGuid of the camera or the device to cause bus reset.

Returns

An Error indicating the success or failure of the function.

9.3.3.3 ForceAllIPAddressesAutomatically() [1/2]

```
static Error ForceAllIPAddressesAutomatically ( )  [static]
```

Force all cameras on the network to be assigned sequential IP addresses on the same subnet as the netowrk adapters that they are connected to.

This is useful in situations where GigE Vision cameras are using IP addresses in a subnet different from the host's subnet.

Returns

An Error indicating the success or failure of the function.

9.3.3.4 ForceAllIPAddressesAutomatically() [2/2]

```
static Error ForceAllIPAddressesAutomatically (
            unsigned int serialNumber )  [static]
```

Force a camera on the network to be assigned an IP address on the same subnet as the netowrk adapters that it is connected to.

This is useful in situations where GigE Vision cameras are using IP addresses in a subnet different from the host's subnet.

Returns

An Error indicating the success or failure of the function.

9.3.3.5 ForceIPAddressToCamera()

```
static Error ForceIPAddressToCamera (
             MACAddress macAddress,
             IPAddress ipAddress,
             IPAddress subnetMask,
             IPAddress defaultGateway )  [static]
```

Force the camera with the specific MAC address to the specified IP address, subnet mask and default gateway.

This is useful in situations where GigE Vision cameras are using IP addresses in a subnet different from the host's subnet.

Parameters

macAddress	MAC address of the camera.
ipAddress	IP address to set on the camera.
subnetMask	Subnet mask to set on the camera.
defaultGateway	Default gateway to set on the camera.

Returns

An Error indicating the success or failure of the function.

9.3.3.6 GetCameraFromIndex()

```
virtual Error GetCameraFromIndex (
             unsigned int index,
             PGRGuid * pGuid )  [virtual]
```

Gets the PGRGuid for a camera on the PC.

It uniquely identifies the camera specified by the index and is used to identify the camera during a Camera::↩ Connect() call.

Parameters

index	Zero based index of camera.
pGuid	Unique PGRGuid for the camera.

See also

GetCameraFromSerialNumber()

Returns

An Error indicating the success or failure of the function.

9.3.3.7 GetCameraFromIPAddress()

```
virtual Error GetCameraFromIPAddress (
            IPAddress ipAddress,
            PGRGuid * pGuid )  [virtual]
```

Gets the PGRGuid for a camera with the specified IPv4 address.

Parameters

ipAddress	IP address to get GUID for.
pGuid	Unique PGRGuid for the camera.

Returns

An Error indicating the success or failure of the function.

9.3.3.8 GetCameraFromSerialNumber()

```
virtual Error GetCameraFromSerialNumber (
            unsigned int serialNumber,
            PGRGuid * pGuid )  [virtual]
```

Gets the PGRGuid for a camera on the PC.

It uniquely identifies the camera specified by the serial number and is used to identify the camera during a Camera↵ ::Connect() call.

Parameters

serialNumber	Serial number of camera.
pGuid	Unique PGRGuid for the camera.

See also

GetCameraFromIndex()

Returns

An Error indicating the success or failure of the function.

9.3.3.9 GetCameraSerialNumberFromIndex()

```
virtual Error GetCameraSerialNumberFromIndex (
            unsigned int index,
            unsigned int * pSerialNumber )  [virtual]
```

Gets the serial number of the camera with the specified index.

Parameters

index	Zero based index of desired camera.
pSerialNumber	Serial number of camera.

Returns

An Error indicating the success or failure of the function.

9.3.3.10 GetDeviceFromIndex()

```
virtual Error GetDeviceFromIndex (
            unsigned int index,
            PGRGuid * pGuid )  [virtual]
```

Gets the PGRGuid for a device.

It uniquely identifies the device specified by the index.

Parameters

index	Zero based index of device.
pGuid	Unique PGRGuid for the device.

See also

GetNumOfDevices()

Returns

An Error indicating the success or failure of the function.

9.3.3.11 GetInterfaceTypeFromGuid()

```
virtual Error GetInterfaceTypeFromGuid (
            PGRGuid * pGuid,
            InterfaceType * pInterfaceType )  [virtual]
```

Gets the interface type associated with a PGRGuid.

This is useful in situations where there is a need to enumerate all cameras for a particular interface.

Parameters

pGuid	The PGRGuid to get the interface for.
pInterfaceType	The interface type of the PGRGuid.

Returns

An Error indicating the success or failure of the function.

9.3.3.12 GetNumOfCameras()

```
virtual Error GetNumOfCameras (
            unsigned int * pNumCameras )  [virtual]
```

Gets the number of cameras attached to the PC.

Parameters

pNumCameras	The number of cameras attached.

Returns

An Error indicating the success or failure of the function.

9.3.3.13 GetNumOfDevices()

```
virtual Error GetNumOfDevices (
            unsigned int * pNumDevices )  [virtual]
```

Gets the number of devices.

This may include hubs, host controllers and other hardware devices (including cameras).

Parameters

pNumDevices	The number of devices found.

Returns

An Error indicating the success or failure of the function.

9.3.3.14 GetTopology()

```
virtual Error GetTopology (
            TopologyNode * pNode )  [virtual]
```

Gets the topology information for the PC.

Parameters

pNode	TopologyNode object that will contain the topology information.

Returns

An Error indicating the success or failure of the function.

9.3.3.15 GetUsbLinkInfo()

```
virtual Error GetUsbLinkInfo (
            PGRGuid guid,
            unsigned int * pValue )  [virtual]
```

Read usb link info for the port that the specified device is connected to.

Parameters

guid	PGRGuid of the device to read from.
pValue	Value read from the card register. `Bit 15:0 = Link Error Count. Default = 0. This field returns the number of link errors detected by the port. Bit 19:16 = Rx Lane Count. Default = 0. This field that identifies the number of Receive Lanes negotiated by the port. Bit 23:20 = Tx Lane Count. Default = 0. This field that identifies the number of Transmit Lanes negotiated by the port. Bit 31:24 = Reserved.`

Refer to XHCI 1.1 section 5.4.10 for Port Link Info:
`eXtensible Host Controller interface for USB xHCI`

```
Returns

     An Error indicating the success or failure of the function.
```

9.3.3.16 GetUsbPortStatus()

```
virtual Error GetUsbPortStatus (
            PGRGuid guid,
            unsigned int * pValue )  [virtual]
```

Read usb port status for the port that the specified device is connected to.

Parameters

guid	PGRGuid of the device to read from.

Parameters

pValue	Value read from the card register. `Bit 0 = Current Connect Status. Default = 0. 1 = A device is connected to the port 0 = A device is not connected. This value reflects the current state of the port, and may not correspond directly to the event that caused the Connect Status Change (CSC) bit to be set to 1. Bit 1 = Port Enabled/Disabled. Default = 0. 1 = Enabled. 0 = Disabled. Bit 2 = Reserved. Bit 3 = Over-current Active. Default = 0. 1 = This port currently has an over-current condition. 0 = This port does not have an over-current condition. Bit 4 = Port Reset. Default = 0. 1 = Port Reset signaling is asserted. 0 = Port is not in Reset. Bit 8:5 = Port Link State. Default = RxDetect(5). This field is used to power manage the port and reflects its current link state. Bit 9 = Port Power. Default = 1. This flag reflects a port's logical, power control state. 0 = This port is in the powered-off state. 1 = This port is not in the powered-off state. Bit 13:10 = Port Speed. Default = 0. This field identifies the speed of the connected USB Device. This field is only relevant if a device is connected, in all other cases this field shall indicate Undefined Speed. 0 : Undefined speed 1-15 : Protocol Speed ID (refer to other sections) Bit 15:14 = Port Indicator Control. Default = 0. 0 = Port indicators are off. 1 = Amber. 2 = Green. 3 = Undefined. Bit 16 = Port Link State Write Strobe. Default = 0. When this bit is set to 1 on a write reference to this register, this flag enables writes to the PLS field. Bit 17 = Connect Status Change. Default = 0. 1 = Change in current connect status. 0 = No change. Bit 18 = Port Enabled/Disabled Change. Default = 0. 1 = change in PED. 0 = No change. Bit 19 = Warm Port Reset Change. Default = 0. This bit is set when Warm Reset processing on this port completes. 0 = No change. 1 = Warm Reset complete. Bit 20 = Over current change. Default = 0. This bit shall be set to a 1 when there is a 0 to 1 or 1 to 0 transition of Over-current Active. Bit 21 = Port Reset Change. Default = 0. This flag is set to 1 due to a 1 to 0 transition of Port Reset. Bit 22 = Port Link State Change. Default = 0. This flag is set to 1 due to PLS transitions (refer to document) Bit 23 = Port Config Error Change. Default = 0. This flag indicates that the port failed to configure its link partner. 0 = No change. 1 = Port Config Error detected. Bit 24 = Cold Attach Status. Default = 0. 1 = Far-end receiver terminations were detected in the disconnected state and the root hub port state machine was unable to advance to the enabled state. 0 - This flag is 0 if PP is 0 or for USB2 protocol parts. Bit 25 = Wake on Connect Enable. Default = 0. Writing this bit to a 1 enables to port to be sensitive to device connects as system wake up events. Bit 26 = Wake on Disconnect Enable. Default = 0. Writing this bit to a 1 enables the port to be sensitive to device disconnects as system wake up events. Bit 27 = Wake on Over-current Enable. Default = 0. Writing this bit to a 1 enables the port to be sensitive to over-current conditions as system wake up events. Bit 29:28 = Reserved Bit 30 = Device Removable. This flag indicates if this port has a removable device attached. 1 = Device is non-removable. 0 = Device is removable. Bit 31 = Warm Port Reset. Default = 0. This flag shall always return 0 when read. Refer to document for writing.`

Refer to XHCI 1.1 section 5.4.8 for Port Status:
`eXtensible Host Controller interface for USB xHCI`

Returns

An Error indicating the success or failure of the function.

9.3.3.17 IsCameraControlable()

```
Error IsCameraControlable (
            PGRGuid * pGuid,
            bool * pControlable )
```

Query CCP status on camera with corresponding PGRGuid.

This is useful to determine if a GigE camera can be controlled.

Parameters

pGuid	PGRGuid of the camera
pControlable	Indicates whether camera is controllable

Returns

An Error indicating the success or failure of the function.

9.3.3.18 ReadPhyRegister()

```
virtual Error ReadPhyRegister (
            PGRGuid guid,
            unsigned int page,
            unsigned int port,
            unsigned int address,
            unsigned int * pValue )  [virtual]
```

Read a phy register on the specified device.

The full address to be read from is determined by the page, port and address.

Parameters

guid	PGRGuid of the device to read from.
page	Page to read from.
port	Port to read from.
address	Address to read from.
pValue	Value read from the phy register.

Returns

An Error indicating the success or failure of the function.

9.3.3.19 RegisterCallback()

```
virtual Error RegisterCallback (
            BusEventCallback busEventCallback,
            BusCallbackType callbackType,
            void * pParameter,
            CallbackHandle * pCallbackHandle )  [virtual]
```

Register a callback function that will be called when the specified callback event occurs.

Parameters

busEventCallback	Pointer to function that will receive the callback.
callbackType	Type of callback to register for.
pParameter	Callback parameter to be passed to callback.
pCallbackHandle	Unique callback handle used for unregistering callback.

See also

UnregisterCallback()

Returns

An Error indicating the success or failure of the function.

9.3.3.20 RescanBus()

```
virtual Error RescanBus ( )  [virtual]
```

Force a rescan of the buses.

This does not trigger a bus reset. The camera objects will be invalidated only if the camera network topology is changed (ie. a camera is disconnected or added)

Returns

An Error indicating the success or failure of the function.

9.3.3.21 UnregisterCallback()

```
virtual Error UnregisterCallback (
            CallbackHandle callbackHandle )  [virtual]
```

Unregister a callback function.

Parameters

callbackHandle	Unique callback handle.

See also

RegisterCallback()

Returns

An Error indicating the success or failure of the function.

9.3.3.22 WritePhyRegister()

```
virtual Error WritePhyRegister (
            PGRGuid guid,
            unsigned int page,
            unsigned int port,
            unsigned int address,
            unsigned int value )  [virtual]
```

Write a phy register on the specified device.

The full address to be written to is determined by the page, port and address.

Parameters

guid	PGRGuid of the device to write to.
page	Page to write to.
port	Port to write to.
address	Address to write to.
value	Value to write to phy register.

Returns

An Error indicating the success or failure of the function.

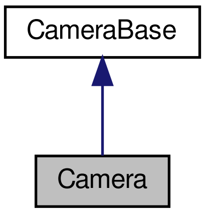
The documentation for this class was generated from the following file:

- BusManager.h

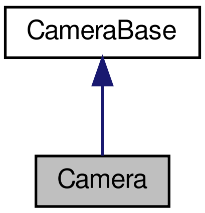
9.4 Camera Class Reference

The Camera object represents a physical camera that uses the IIDC register set.

Inheritance diagram for Camera:



Collaboration diagram for Camera:



Public Member Functions

- Camera ()

  Default constructor.
- virtual ∼Camera ()

  Default destructor.
- virtual Error Connect (PGRGuid ∗pGuid=NULL)

  The following functions are inherited from CameraBase.
- virtual Error Disconnect ()

  Disconnects the camera object from the camera.
- virtual bool IsConnected ()

  Checks if the camera object is connected to a physical camera specified by a GUID.
- virtual Error SetCallback (ImageEventCallback callbackFn, const void ∗pCallbackData=NULL)

  Sets the callback data to be used on completion of image transfer.
- virtual Error StartCapture (ImageEventCallback callbackFn=NULL, const void ∗pCallbackData=NULL)

  Starts isochronous image capture.
- virtual Error RetrieveBuffer (Image ∗pImage)

  Retrieves the the next image object containing the next image.
- virtual Error StopCapture ()

Stops isochronous image transfer and cleans up all associated resources.

- virtual Error WaitForBufferEvent (Image ∗pImage, unsigned int eventNumber)

  Retrieves the next image event containing the next part of the image.
- virtual Error SetUserBuffers (unsigned char ∗const pMemBuffers, int size, int numBuffers)

  Specify user allocated buffers to use as image data buffers.
- virtual Error GetConfiguration (FC2Config ∗pConfig)

  Get the configuration associated with the camera object.
- virtual Error SetConfiguration (const FC2Config ∗pConfig)

  Set the configuration associated with the camera object.
- virtual Error GetCameraInfo (CameraInfo ∗pCameraInfo)

  Retrieves information from the camera such as serial number, model name and other camera information.
- virtual Error GetPropertyInfo (PropertyInfo ∗pPropInfo)

  Retrieves information about the specified camera property.
- virtual Error GetProperty (Property ∗pProp)

  Reads the settings for the specified property from the camera.
- virtual Error SetProperty (const Property ∗pProp, bool broadcast=false)

  Writes the settings for the specified property to the camera.
- virtual Error GetGPIOPinDirection (unsigned int pin, unsigned int ∗pDirection)

  Get the GPIO pin direction for the specified pin.
- virtual Error SetGPIOPinDirection (unsigned int pin, unsigned int direction, bool broadcast=false)

  Set the GPIO pin direction for the specified pin.
- virtual Error GetTriggerModeInfo (TriggerModeInfo ∗pTriggerModeInfo)

  Retrieve trigger information from the camera.
- virtual Error GetTriggerMode (TriggerMode ∗pTriggerMode)

  Retrieve current trigger settings from the camera.
- virtual Error SetTriggerMode (const TriggerMode ∗pTriggerMode, bool broadcast=false)

  Set the specified trigger settings to the camera.
- virtual Error FireSoftwareTrigger (bool broadcast=false)

  Fire the software trigger according to the DCAM specifications.
- virtual Error GetTriggerDelayInfo (TriggerDelayInfo ∗pTriggerDelayInfo)

  Retrieve trigger delay information from the camera.
- virtual Error GetTriggerDelay (TriggerDelay ∗pTriggerDelay)

  Retrieve current trigger delay settings from the camera.
- virtual Error SetTriggerDelay (const TriggerDelay ∗pTriggerDelay, bool broadcast=false)

  Set the specified trigger delay settings to the camera.
- virtual Error GetStrobeInfo (StrobeInfo ∗pStrobeInfo)

  Retrieve strobe information from the camera.
- virtual Error GetStrobe (StrobeControl ∗pStrobeControl)

  Retrieve current strobe settings from the camera.
- virtual Error SetStrobe (const StrobeControl ∗pStrobeControl, bool broadcast=false)

  Set current strobe settings to the camera.
- virtual Error GetLUTInfo (LUTData ∗pData)

  Query if LUT support is available on the camera.
- virtual Error GetLUTBankInfo (unsigned int bank, bool ∗pReadSupported, bool ∗pWriteSupported)

  Query the read/write status of a single LUT bank.
- virtual Error GetActiveLUTBank (unsigned int ∗pActiveBank)

  Get the LUT bank that is currently being used.
- virtual Error SetActiveLUTBank (unsigned int activeBank)

  Set the LUT bank that will be used.
- virtual Error EnableLUT (bool on)

  Enable or disable LUT functionality on the camera.

- virtual Error GetLUTChannel (unsigned int bank, unsigned int channel, unsigned int sizeEntries, unsigned int ∗pEntries)

  Get the LUT channel settings from the camera.
- virtual Error SetLUTChannel (unsigned int bank, unsigned int channel, unsigned int sizeEntries, const unsigned int ∗pEntries)

  Set the LUT channel settings to the camera.
- virtual Error GetMemoryChannel (unsigned int ∗pCurrentChannel)

  Retrieve the current memory channel from the camera.
- virtual Error SaveToMemoryChannel (unsigned int channel)

  Save the current settings to the specfied current memory channel.
- virtual Error RestoreFromMemoryChannel (unsigned int channel)

  Restore the specfied current memory channel.
- virtual Error GetMemoryChannelInfo (unsigned int ∗pNumChannels)

  Query the camera for memory channel support.
- virtual Error GetEmbeddedImageInfo (EmbeddedImageInfo ∗pInfo)

  Get the current status of the embedded image information register, as well as the availability of each embedded property.
- virtual Error SetEmbeddedImageInfo (EmbeddedImageInfo ∗pInfo)

  Sets the on/off values of the embedded image information structure to the camera.
- virtual Error WriteRegister (unsigned int address, unsigned int value, bool broadcast=false)

  Write to the specified register on the camera.
- virtual Error ReadRegister (unsigned int address, unsigned int ∗pValue)

  Read the specified register from the camera.
- virtual Error WriteRegisterBlock (unsigned short addressHigh, unsigned int addressLow, const unsigned int ∗pBuffer, unsigned int length)

  Write to the specified register block on the camera.
- virtual Error ReadRegisterBlock (unsigned short addressHigh, unsigned int addressLow, unsigned int ∗p↩ Buffer, unsigned int length)

  Read from the specified register block on the camera.
- virtual Error GetCycleTime (TimeStamp ∗timeStamp)

  Returns a Timestamp struct containing 1394 CYCLE_TIME information.
- virtual Error GetStats (CameraStats ∗pStats)
- virtual Error ResetStats ()
- virtual Error RegisterEvent (EventOptions ∗pOpts)
- virtual Error DeregisterEvent (EventOptions ∗pOpts)
- virtual Error RegisterAllEvents (EventOptions ∗pOpts)
- virtual Error DeregisterAllEvents (void)

Static Public Member Functions

- static Error StartSyncCapture (unsigned int numCameras, const Camera ∗∗ppCameras, const ImageEvent↩ Callback ∗pCallbackFns=NULL, const void ∗∗pCallbackDataArray=NULL)
- static const char ∗ GetRegisterString (unsigned int registerVal)

DCAM Formats

These functions deal with DCAM video mode and frame rate on the camera.

They are only used for firewire and usb2 cameras.

- virtual Error GetVideoModeAndFrameRateInfo (VideoMode videoMode, FrameRate frameRate, bool ∗p←↩ Supported)

  Query the camera to determine if the specified video mode and frame rate is supported.
- virtual Error GetVideoModeAndFrameRate (VideoMode ∗pVideoMode, FrameRate ∗pFrameRate)

  Get the current video mode and frame rate from the camera.
- virtual Error SetVideoModeAndFrameRate (VideoMode videoMode, FrameRate frameRate)

  Set the specified video mode and frame rate to the camera.

Format7

These functions deal with Format7 custom image control on the camera.

- virtual Error GetFormat7Info (Format7Info ∗pInfo, bool ∗pSupported)

  Retrieve the availability of Format7 custom image mode and the camera capabilities for the specified Format7 mode.
- virtual Error ValidateFormat7Settings (const Format7ImageSettings ∗pImageSettings, bool ∗pSettingsAre←↩ Valid, Format7PacketInfo ∗pPacketInfo)

  Validates Format7ImageSettings structure and returns valid packet size information if the image settings are valid.
- virtual Error GetFormat7Configuration (Format7ImageSettings ∗pImageSettings, unsigned int ∗pPacketSize, float ∗pPercentage)

  Get the current Format7 configuration from the camera.
- virtual Error SetFormat7Configuration (const Format7ImageSettings ∗pImageSettings, unsigned int packet←↩ Size)

  Set the current Format7 configuration to the camera.
- virtual Error SetFormat7Configuration (const Format7ImageSettings ∗pImageSettings, float percentSpeed)

  Set the current Format7 configuration to the camera.

Additional Inherited Members

9.4.1 Detailed Description

The Camera object represents a physical camera that uses the IIDC register set.

The object must first be connected to using Connect() before any other operations can proceed.

It is possible for more than 1 Camera object to connect to a single physical camera. However, isochronous transmission to more than 1 Camera object is not supported.

9.4.2 Constructor & Destructor Documentation

9.4.2.1 Camera()

```
Camera ( )
```

Default constructor.

9.4.2.2 ∼Camera()

```
virtual ∼Camera ( ) [virtual]
```

Default destructor.

9.4.3 Member Function Documentation

9.4.3.1 Connect()

```
virtual Error Connect (
            PGRGuid * pGuid = NULL ) [virtual]
```

The following functions are inherited from CameraBase.

See CameraBase.h for further information.

Implements CameraBase.

9.4.3.2 DeregisterAllEvents()

```
virtual Error DeregisterAllEvents (
            void ) [virtual]
```

Implements CameraBase.

9.4.3.3 DeregisterEvent()

```
virtual Error DeregisterEvent (
            EventOptions * pOpts ) [virtual]
```

Implements CameraBase.

9.4.3.4 Disconnect()

```
virtual Error Disconnect ( )  [virtual]
```

Disconnects the camera object from the camera.

This allows another physical camera specified by a GUID to be connected to the camera object.

See also

Connect()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.5 EnableLUT()

```
virtual Error EnableLUT (
              bool on )  [virtual]
```

Enable or disable LUT functionality on the camera.

Parameters

on	Whether to enable or disable LUT.

See also

GetLUTInfo()
GetLUTChannel()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.6 FireSoftwareTrigger()

```
virtual Error FireSoftwareTrigger (
              bool broadcast = false )  [virtual]
```

Fire the software trigger according to the DCAM specifications.

Parameters

broadcast	Whether the action should be broadcast.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.7 GetActiveLUTBank()

```
virtual Error GetActiveLUTBank (
             unsigned int * pActiveBank )  [virtual]
```

Get the LUT bank that is currently being used.

For cameras with PGR LUT, the active bank is always 0.

Parameters

pActiveBank	The currently active bank.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.8 GetCameraInfo()

```
virtual Error GetCameraInfo (
             CameraInfo * pCameraInfo )  [virtual]
```

Retrieves information from the camera such as serial number, model name and other camera information.

Parameters

pCameraInfo	Pointer to the camera information structure to be filled.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.9 GetConfiguration()

```
virtual Error GetConfiguration (
            FC2Config * pConfig )  [virtual]
```

Get the configuration associated with the camera object.

Parameters

pConfig	Pointer to the configuration structure to be filled.

See also

SetConfiguration()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.10 GetCycleTime()

```
virtual Error GetCycleTime (
            TimeStamp * timeStamp )  [virtual]
```

Returns a Timestamp struct containing 1394 CYCLE_TIME information.

Parameters

registerVal	The register value to query.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.11 GetEmbeddedImageInfo()

```
virtual Error GetEmbeddedImageInfo (
            EmbeddedImageInfo * pInfo )  [virtual]
```

Get the current status of the embedded image information register, as well as the availability of each embedded property.

Parameters

pInfo	Structure to be filled.

See also

SetEmbeddedImageInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.12 GetFormat7Configuration()

```
virtual Error GetFormat7Configuration (
            Format7ImageSettings * pImageSettings,
            unsigned int * pPacketSize,
            float * pPercentage )  [virtual]
```

Get the current Format7 configuration from the camera.

This call will only succeed if the camera is already in Format7.

Parameters

pImageSettings	Current image settings.
pPacketSize	Current packet size.
pPercentage	Current packet size as a percentage.

See also

GetFormat7Info()
ValidateFormat7Settings()
SetFormat7Configuration()
GetVideoModeAndFrameRate()

Returns

An Error indicating the success or failure of the function.

9.4.3.13 GetFormat7Info()

```
virtual Error GetFormat7Info (
            Format7Info * pInfo,
            bool * pSupported )  [virtual]
```

Retrieve the availability of Format7 custom image mode and the camera capabilities for the specified Format7 mode.

The mode must be specified in the Format7Info structure in order for the function to succeed.

Parameters

pInfo	Structure to be filled with the capabilities of the specified mode and the current state in the specified mode.
pSupported	Whether the specified mode is supported.

See also

ValidateFormat7Settings()
GetFormat7Configuration()
SetFormat7Configuration()

Returns

An Error indicating the success or failure of the function.

9.4.3.14 GetGPIOPinDirection()

```
virtual Error GetGPIOPinDirection (
            unsigned int pin,
            unsigned int * pDirection )  [virtual]
```

Get the GPIO pin direction for the specified pin.

This is not a required call when using the trigger or strobe functions as the pin direction is set automatically internally.

Parameters

pin	Pin to get the direction for.
pDirection	Direction of the pin. 0 for input, 1 for output.

See also

SetGPIOPinDirection()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.15 GetLUTBankInfo()

```
virtual Error GetLUTBankInfo (
             unsigned int bank,
             bool * pReadSupported,
             bool * pWriteSupported )  [virtual]
```

Query the read/write status of a single LUT bank.

Parameters

bank	The bank to query.
pReadSupported	Whether reading from the bank is supported.
pWriteSupported	Whether writing to the bank is supported.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.16 GetLUTChannel()

```
virtual Error GetLUTChannel (
             unsigned int bank,
             unsigned int channel,
             unsigned int sizeEntries,
             unsigned int * pEntries )  [virtual]
```

Get the LUT channel settings from the camera.

Parameters

bank	Bank to retrieve.
channel	Channel to retrieve.
sizeEntries	Number of entries in LUT table to read.
pEntries	Array to store LUT entries.

See also

GetLUTInfo()
EnableLUT()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.17 GetLUTInfo()

```
virtual Error GetLUTInfo (
            LUTData * pData )  [virtual]
```

Query if LUT support is available on the camera.

Note that some cameras may report support for the LUT and return an inputBitDepth of 0. In these cases use log2(numEntries) for the inputBitDepth.

Parameters

pData	The LUT structure to be filled.

See also

EnableLUT()
GetLUTChannel()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.18 GetMemoryChannel()

```
virtual Error GetMemoryChannel (
            unsigned int * pCurrentChannel )  [virtual]
```

Retrieve the current memory channel from the camera.

Parameters

pCurrentChannel	Current memory channel.

See also

SaveToMemoryChannel()
RestoreFromMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.19 GetMemoryChannelInfo()

```
virtual Error GetMemoryChannelInfo (
            unsigned int * pNumChannels )  [virtual]
```

Query the camera for memory channel support.

If the number of channels is 0, then memory channel support is not available.

Parameters

pNumChannels	Number of memory channels supported.

See also

GetMemoryChannel()
SaveToMemoryChannel()
RestoreFromMemoryChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.20 GetProperty()

```
virtual Error GetProperty (
            Property * pProp )  [virtual]
```

Reads the settings for the specified property from the camera.

The property type must be specified in the Property structure passed into the function in order for the function to succeed. If auto is on, the integer and abs values returned may not be consistent with each other.

Parameters

pProp	Pointer to the Property structure to be filled.

See also

GetPropertyInfo()
SetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.21 GetPropertyInfo()

```
virtual Error GetPropertyInfo (
            PropertyInfo * pPropInfo )  [virtual]
```

Retrieves information about the specified camera property.

The property type must be specified in the PropertyInfo structure passed into the function in order for the function to succeed.

Parameters

pPropInfo	Pointer to the PropertyInfo structure to be filled.

See also

GetProperty()
SetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.22 GetRegisterString()

```
static const char* GetRegisterString (
            unsigned int registerVal )  [static]
```

9.4.3.23 GetStats()

```
virtual Error GetStats (
            CameraStats * pStats )  [virtual]
```

Implements CameraBase.

9.4.3.24 GetStrobe()

```
virtual Error GetStrobe (
            StrobeControl * pStrobeControl )  [virtual]
```

Retrieve current strobe settings from the camera.

The strobe pin must be specified in the structure before being passed in to the function.

Parameters

pStrobeControl	Structure to receive strobe settings.

See also

GetStrobeInfo()
SetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.25 GetStrobeInfo()

```
virtual Error GetStrobeInfo (
            StrobeInfo * pStrobeInfo )  [virtual]
```

Retrieve strobe information from the camera.

Parameters

pStrobeInfo	Structure to receive strobe information.

See also

GetStrobe()
SetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.26 GetTriggerDelay()

```
virtual Error GetTriggerDelay (
            TriggerDelay * pTriggerDelay )  [virtual]
```

Retrieve current trigger delay settings from the camera.

Parameters

pTriggerDelay	Structure to receive trigger delay settings.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.27 GetTriggerDelayInfo()

```
virtual Error GetTriggerDelayInfo (
            TriggerDelayInfo * pTriggerDelayInfo )  [virtual]
```

Retrieve trigger delay information from the camera.

Parameters

pTriggerDelayInfo	Structure to receive trigger delay information.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.28 GetTriggerMode()

```
virtual Error GetTriggerMode (
            TriggerMode * pTriggerMode )  [virtual]
```

Retrieve current trigger settings from the camera.

Parameters

pTriggerMode	Structure to receive trigger mode settings.

See also

GetTriggerModeInfo()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.29 GetTriggerModeInfo()

```
virtual Error GetTriggerModeInfo (
            TriggerModeInfo * pTriggerModeInfo )  [virtual]
```

Retrieve trigger information from the camera.

Parameters

pTriggerModeInfo	Structure to receive trigger information.

See also

GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.30 GetVideoModeAndFrameRate()

```
virtual Error GetVideoModeAndFrameRate (
            VideoMode * pVideoMode,
            FrameRate * pFrameRate )  [virtual]
```

Get the current video mode and frame rate from the camera.

If the camera is in Format7, the video mode will be VIDEOMODE_FORMAT7 and the frame rate will be FRAME↩
RATE_FORMAT7.

Parameters

pVideoMode	Current video mode.
pFrameRate	Current frame rate.

See also

GetVideoModeAndFrameRateInfo()
SetVideoModeAndFrameRate()

Returns

An Error indicating the success or failure of the function.

9.4.3.31 GetVideoModeAndFrameRateInfo()

```
virtual Error GetVideoModeAndFrameRateInfo (
            VideoMode videoMode,
            FrameRate frameRate,
            bool * pSupported )  [virtual]
```

Query the camera to determine if the specified video mode and frame rate is supported.

Parameters

videoMode	Video mode to check.
frameRate	Frame rate to check.
pSupported	Whether the video mode and frame rate is supported.

See also

GetVideoModeAndFrameRate()
SetVideoModeAndFrameRate()

Returns

An Error indicating the success or failure of the function.

9.4.3.32 IsConnected()

```
virtual bool IsConnected ( )  [virtual]
```

Checks if the camera object is connected to a physical camera specified by a GUID.

See also

Connect()
Disconnect()

Returns

Whether Connect() was called on the camera object.

Implements CameraBase.

9.4.3.33 ReadRegister()

```
virtual Error ReadRegister (
            unsigned int address,
            unsigned int * pValue )  [virtual]
```

Read the specified register from the camera.

Parameters

address	DCAM address to be read from.
pValue	The value that is read.

See also

WriteRegister()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.34 ReadRegisterBlock()

```
virtual Error ReadRegisterBlock (
            unsigned short addressHigh,
            unsigned int addressLow,
            unsigned int * pBuffer,
            unsigned int length )  [virtual]
```

Read from the specified register block on the camera.

Parameters

addressHigh	Top 16 bits of the 48 bit absolute address to read from.
addressLow	Bottom 32 bits of the 48 bits absolute address to read from.
pBuffer	Array to store read data.
length	Size of array, in quadlets.

See also

WriteRegisterBlock()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.35 RegisterAllEvents()

```
virtual Error RegisterAllEvents (
            EventOptions * pOpts )  [virtual]
```

Implements CameraBase.

9.4.3.36 RegisterEvent()

```
virtual Error RegisterEvent (
            EventOptions * pOpts )   [virtual]
```

Implements CameraBase.

9.4.3.37 ResetStats()

```
virtual Error ResetStats ( )   [virtual]
```

Implements CameraBase.

9.4.3.38 RestoreFromMemoryChannel()

```
virtual Error RestoreFromMemoryChannel (
            unsigned int channel )   [virtual]
```

Restore the specfied current memory channel.

Parameters

channel	Memory channel to restore from.

See also

GetMemoryChannel()
SaveToMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.39 RetrieveBuffer()

```
virtual Error RetrieveBuffer (
            Image * pImage )   [virtual]
```

Retrieves the the next image object containing the next image.

If the grab mode has not been set, or has been set to DROP_FRAMES the default behavior is to requeue images for DMA if they have not been retrieved by the time the next image transfer completes. If BUFFER_FRAMES is specified, the next image in the sequence will be retrieved. Note that for the BUFFER_FRAMES case, if retrieval does not keep up with the DMA process, images will be lost. The default behavior is to perform DROP_FRAMES image retrieval.

Parameters

pImage	Pointer to Image object to store image data.

See also

StartCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.40 SaveToMemoryChannel()

```
virtual Error SaveToMemoryChannel (
            unsigned int channel )  [virtual]
```

Save the current settings to the specfied current memory channel.

Parameters

channel	Memory channel to save to.

See also

GetMemoryChannel()
RestoreFromMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.41 SetActiveLUTBank()

```
virtual Error SetActiveLUTBank (
            unsigned int activeBank )  [virtual]
```

Set the LUT bank that will be used.

Parameters

activeBank	The bank to be set as active.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.42 SetCallback()

```
virtual Error SetCallback (
            ImageEventCallback callbackFn,
            const void * pCallbackData = NULL )  [virtual]
```

Sets the callback data to be used on completion of image transfer.

To clear the current stored callback data, pass in NULL for both arguments.

Parameters

callbackFn	A function to be called when a new image is received.
pCallbackData	A pointer to data that can be passed to the callback function.

See also

StartCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.43 SetConfiguration()

```
virtual Error SetConfiguration (
            const FC2Config * pConfig )  [virtual]
```

Set the configuration associated with the camera object.

Parameters

pConfig	Pointer to the configuration structure to be used.

See also

GetConfiguration()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.44 SetEmbeddedImageInfo()

```
virtual Error SetEmbeddedImageInfo (
            EmbeddedImageInfo * pInfo )  [virtual]
```

Sets the on/off values of the embedded image information structure to the camera.

Parameters

pInfo	Structure to be used.

See also

GetEmbeddedImageInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.45 SetFormat7Configuration() [1/2]

```
virtual Error SetFormat7Configuration (
            const Format7ImageSettings * pImageSettings,
            unsigned int packetSize )  [virtual]
```

Set the current Format7 configuration to the camera.

Parameters

pImageSettings	Image settings to be written to the camera.
packetSize	Packet size to be written to the camera.

See also

GetFormat7Info()
ValidateFormat7Settings()
GetFormat7Configuration()

Returns

An Error indicating the success or failure of the function.

9.4.3.46 SetFormat7Configuration() [2/2]

```
virtual Error SetFormat7Configuration (
            const Format7ImageSettings * pImageSettings,
            float percentSpeed )  [virtual]
```

Set the current Format7 configuration to the camera.

Parameters

pImageSettings	Image settings to be written to the camera.
percentSpeed	Percentage of packet size to be written to the camera.

See also

GetFormat7Info()
ValidateFormat7Settings()
GetFormat7Configuration()

Returns

An Error indicating the success or failure of the function.

9.4.3.47 SetGPIOPinDirection()

```
virtual Error SetGPIOPinDirection (
            unsigned int pin,
            unsigned int direction,
            bool broadcast = false )  [virtual]
```

Set the GPIO pin direction for the specified pin.

This is useful if there is a need to set the pin into an input pin (i.e. to read the voltage) off the pin without setting it as a trigger source. This is not a required call when using the trigger or strobe functions as the pin direction is set automatically internally.

Parameters

pin	Pin to get the direction for.
direction	Direction of the pin. 0 for input, 1 for output.
broadcast	Whether the action should be broadcast.

See also

GetGPIOPinDirection()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.48 SetLUTChannel()

```
virtual Error SetLUTChannel (
            unsigned int bank,
            unsigned int channel,
            unsigned int sizeEntries,
            const unsigned int * pEntries )  [virtual]
```

Set the LUT channel settings to the camera.

Parameters

bank	Bank to set.
channel	Channel to set.
sizeEntries	Number of entries in LUT table to write. This must be the same size as numEntries returned by GetLutInfo().
pEntries	Array containing LUT entries to write.

See also

GetLUTInfo()
EnableLUT()
GetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.49 SetProperty()

```
virtual Error SetProperty (
            const Property * pProp,
            bool broadcast = false )  [virtual]
```

Writes the settings for the specified property to the camera.

The property type must be specified in the Property structure passed into the function in order for the function to succeed. The absControl flag controls whether the absolute or integer value is written to the camera. Use GetPropertyInfo() to query which options are available for a specific property.

Parameters

pProp	Pointer to the Property structure to be used.
broadcast	Whether the action should be broadcast.

See also

GetPropertyInfo()
GetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.50 SetStrobe()

```
virtual Error SetStrobe (
            const StrobeControl * pStrobeControl,
            bool broadcast = false )  [virtual]
```

Set current strobe settings to the camera.

The strobe pin must be specified in the structure before being passed in to the function.

Parameters

pStrobeControl	Structure providing strobe settings.
broadcast	Whether the action should be broadcast.

See also

GetStrobeInfo()
GetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.51 SetTriggerDelay()

```
virtual Error SetTriggerDelay (
            const TriggerDelay * pTriggerDelay,
            bool broadcast = false )  [virtual]
```

Set the specified trigger delay settings to the camera.

Parameters

pTriggerDelay	Structure providing trigger delay settings.
broadcast	Whether the action should be broadcast.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.52 SetTriggerMode()

```
virtual Error SetTriggerMode (
            const TriggerMode * pTriggerMode,
            bool broadcast = false )  [virtual]
```

Set the specified trigger settings to the camera.

Parameters

pTriggerMode	Structure providing trigger mode settings.
broadcast	Whether the action should be broadcast.

See also

GetTriggerModeInfo()
GetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.53 SetUserBuffers()

```
virtual Error SetUserBuffers (
            unsigned char *const pMemBuffers,
            int size,
            int numBuffers )  [virtual]
```

Specify user allocated buffers to use as image data buffers.

To prevent image tearing, the size of each buffer should be equal to ((unsigned int)(bufferSize + packetSize - 1)/packetSize) ∗ packetSize. The total size should be (size ∗ numBuffers) or larger. The packet Size that should be used differs between interfaces: Firewire: Use the Format7 packet size. Usb2: First round to Format7 packet size then round to 512 bytes. Usb3: Use a packet size of 1024 bytes. GigE: No need to do any rounding on GigE

Parameters

pMemBuffers	Pointer to memory buffers to be written to.
size	The size of each buffer (in bytes).
numBuffers	Number of buffers in the array.

See also

StartCapture()
RetrieveBuffer()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.54 SetVideoModeAndFrameRate()

```
virtual Error SetVideoModeAndFrameRate (
            VideoMode videoMode,
            FrameRate frameRate )  [virtual]
```

Set the specified video mode and frame rate to the camera.

It is not possible to set the camera to VIDEOMODE_FORMAT7 or FRAMERATE_FORMAT7. Use the Format7 functions to set the camera into Format7.

Parameters

videoMode	Video mode to set to camera.
frameRate	Frame rate to set to camera.

See also

GetVideoModeAndFrameRateInfo()
GetVideoModeAndFrameRate()

Returns

An Error indicating the success or failure of the function.

9.4.3.55 StartCapture()

```
virtual Error StartCapture (
            ImageEventCallback callbackFn = NULL,
            const void * pCallbackData = NULL )  [virtual]
```

Starts isochronous image capture.

It will use either the current video mode or the most recently set video mode of the camera. The optional callback function parameter is called on completion of image transfer. When a callback function is specified, the grab mode will determine how images are delivered. If the grab mode has not been set, or has been set to DROP_FRAM←ES the default behavior is to requeue images for DMA if they have not been delivered by the time the next image transfer completes. If BUFFER_FRAMES is specified, the next image in the sequence will be delivered. Note that for the BUFFER_FRAMES case, if delivery does not keep up with the DMA process, images will be lost. The default behavior is to perform DROP_FRAMES image delivery Alternatively, the callback parameter can be set to NULL and RetrieveBuffer() can be called as a blocking call to get the image data.

Parameters

callbackFn	A function to be called when a new image is received.
pCallbackData	A pointer to data that can be passed to the callback function.

See also

RetrieveBuffer()
StartSyncCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.56 StartSyncCapture()

```
static Error StartSyncCapture (
            unsigned int numCameras,
            const Camera ** ppCameras,
            const ImageEventCallback * pCallbackFns = NULL,
            const void ** pCallbackDataArray = NULL )  [static]
```

9.4.3.57 StopCapture()

```
virtual Error StopCapture ( )  [virtual]
```

Stops isochronous image transfer and cleans up all associated resources.

If an image callback function (specified in the StartCapture() call) is currently executing, StopCapture() will not return until after the callback has completed.

See also

StartCapture()
RetrieveBuffer()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.58 ValidateFormat7Settings()

```
virtual Error ValidateFormat7Settings (
            const Format7ImageSettings * pImageSettings,
            bool * pSettingsAreValid,
            Format7PacketInfo * pPacketInfo )  [virtual]
```

Validates Format7ImageSettings structure and returns valid packet size information if the image settings are valid.

The current image settings are cached while validation is taking place. The cached settings are restored when validation is complete.

Parameters

pImageSettings	Structure containing the image settings.
pSettingsAreValid	Whether the settings are valid.
pPacketInfo	Packet size information that can be used to determine a valid packet size.

See also

GetFormat7Info()
GetFormat7Configuration()
SetFormat7Configuration()

Returns

An Error indicating the success or failure of the function.

9.4.3.59 WaitForBufferEvent()

```
virtual Error WaitForBufferEvent (
            Image * pImage,
            unsigned int eventNumber )  [virtual]
```

Retrieves the next image event containing the next part of the image.

Parameters

pImage	Pointer to Image object to store image data.
eventNumber	The event number to wait for.

See also

StartCapture()
RetrieveBuffer()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.60 WriteRegister()

```
virtual Error WriteRegister (
            unsigned int address,
            unsigned int value,
            bool broadcast = false )  [virtual]
```

Write to the specified register on the camera.

Parameters

address	DCAM address to be written to.
value	The value to be written.
broadcast	Whether the action should be broadcast.

See also

ReadRegister()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.4.3.61 WriteRegisterBlock()

```
virtual Error WriteRegisterBlock (
            unsigned short addressHigh,
            unsigned int addressLow,
            const unsigned int * pBuffer,
            unsigned int length )  [virtual]
```

Write to the specified register block on the camera.

Parameters

addressHigh	Top 16 bits of the 48 bit absolute address to write to.
addressLow	Bottom 32 bits of the 48 bits absolute address to write to.
pBuffer	Array containing data to be written.
length	Size of array, in quadlets.

See also

ReadRegisterBlock()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

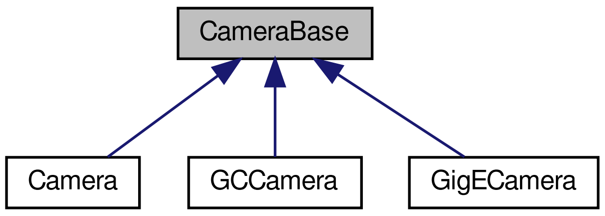
The documentation for this class was generated from the following file:

- Camera.h

9.5 CameraBase Class Reference

The CameraBase class is an abstract base class that defines a general interface to a camera.

Inheritance diagram for CameraBase:



Public Member Functions

- CameraBase ()

  Default constructor.
- virtual ∼CameraBase ()

  Default destructor.

Protected Attributes

- CameraData ∗ m_pCameraData

Connection and Image Retrieval

These functions deal with connections and image retrieval from the camera.

- virtual Error Connect (PGRGuid ∗pGuid=NULL)=0

  Connects the camera object to the camera specified by the GUID.
- virtual Error Disconnect ()=0

  Disconnects the camera object from the camera.
- virtual bool IsConnected ()=0

  Checks if the camera object is connected to a physical camera specified by a GUID.
- virtual Error SetCallback (ImageEventCallback callbackFn, const void ∗pCallbackData=NULL)=0

  Sets the callback data to be used on completion of image transfer.
- virtual Error StartCapture (ImageEventCallback callbackFn=NULL, const void ∗pCallbackData=NULL)=0

  Starts isochronous image capture.
- virtual Error RetrieveBuffer (Image ∗pImage)=0

  Retrieves the the next image object containing the next image.
- virtual Error StopCapture ()=0

  Stops isochronous image transfer and cleans up all associated resources.

- virtual Error WaitForBufferEvent (Image ∗pImage, unsigned int eventNumber)=0

  Retrieves the next image event containing the next part of the image.
- virtual Error SetUserBuffers (unsigned char ∗const pMemBuffers, int size, int numBuffers)=0

  Specify user allocated buffers to use as image data buffers.
- virtual Error GetConfiguration (FC2Config ∗pConfig)=0

  Get the configuration associated with the camera object.
- virtual Error SetConfiguration (const FC2Config ∗pConfig)=0

  Set the configuration associated with the camera object.
- static Error StartSyncCapture (unsigned int numCameras, const CameraBase ∗∗ppCameras, const Image←EventCallback ∗pCallbackFns=NULL, const void ∗∗pCallbackDataArray=NULL)

  Starts isochronous image capture on multiple cameras.

Information and Properties

These functions deal with information and properties can be retrieved from the camera.

- virtual Error GetCameraInfo (CameraInfo ∗pCameraInfo)=0

  Retrieves information from the camera such as serial number, model name and other camera information.
- virtual Error GetPropertyInfo (PropertyInfo ∗pPropInfo)=0

  Retrieves information about the specified camera property.
- virtual Error GetProperty (Property ∗pProp)=0

  Reads the settings for the specified property from the camera.
- virtual Error SetProperty (const Property ∗pProp, bool broadcast=false)=0

  Writes the settings for the specified property to the camera.

General Purpose Input / Output

These functions deal with general GPIO pin control on the camera.

- virtual Error GetGPIOPinDirection (unsigned int pin, unsigned int ∗pDirection)=0

  Get the GPIO pin direction for the specified pin.
- virtual Error SetGPIOPinDirection (unsigned int pin, unsigned int direction, bool broadcast=false)=0

  Set the GPIO pin direction for the specified pin.

Trigger

These functions deal with trigger control on the camera.

- virtual Error GetTriggerModeInfo (TriggerModeInfo ∗pTriggerModeInfo)=0

  Retrieve trigger information from the camera.
- virtual Error GetTriggerMode (TriggerMode ∗pTriggerMode)=0

  Retrieve current trigger settings from the camera.
- virtual Error SetTriggerMode (const TriggerMode ∗pTriggerMode, bool broadcast=false)=0

  Set the specified trigger settings to the camera.
- virtual Error FireSoftwareTrigger (bool broadcast=false)=0

  Fire the software trigger according to the DCAM specifications.
- virtual Error GetTriggerDelayInfo (TriggerDelayInfo ∗pTriggerDelayInfo)=0

  Retrieve trigger delay information from the camera.
- virtual Error GetTriggerDelay (TriggerDelay ∗pTriggerDelay)=0

  Retrieve current trigger delay settings from the camera.
- virtual Error SetTriggerDelay (const TriggerDelay ∗pTriggerDelay, bool broadcast=false)=0

  Set the specified trigger delay settings to the camera.

Strobe

These functions deal with strobe control on the camera.

- virtual Error GetStrobeInfo (StrobeInfo ∗pStrobeInfo)=0

  Retrieve strobe information from the camera.
- virtual Error GetStrobe (StrobeControl ∗pStrobeControl)=0

  Retrieve current strobe settings from the camera.
- virtual Error SetStrobe (const StrobeControl ∗pStrobeControl, bool broadcast=false)=0

  Set current strobe settings to the camera.

Look Up Table

These functions deal with Look Up Table control on the camera.

- virtual Error GetLUTInfo (LUTData ∗pData)=0

  Query if LUT support is available on the camera.
- virtual Error GetLUTBankInfo (unsigned int bank, bool ∗pReadSupported, bool ∗pWriteSupported)=0

  Query the read/write status of a single LUT bank.
- virtual Error GetActiveLUTBank (unsigned int ∗pActiveBank)=0

  Get the LUT bank that is currently being used.
- virtual Error SetActiveLUTBank (unsigned int activeBank)=0

  Set the LUT bank that will be used.
- virtual Error EnableLUT (bool on)=0

  Enable or disable LUT functionality on the camera.
- virtual Error GetLUTChannel (unsigned int bank, unsigned int channel, unsigned int sizeEntries, unsigned int ∗pEntries)=0

  Get the LUT channel settings from the camera.
- virtual Error SetLUTChannel (unsigned int bank, unsigned int channel, unsigned int sizeEntries, const unsigned int ∗pEntries)=0

  Set the LUT channel settings to the camera.

Memory Channels

These functions deal with memory channel control on the camera.

- virtual Error GetMemoryChannel (unsigned int ∗pCurrentChannel)=0

  Retrieve the current memory channel from the camera.
- virtual Error SaveToMemoryChannel (unsigned int channel)=0

  Save the current settings to the specfied current memory channel.
- virtual Error RestoreFromMemoryChannel (unsigned int channel)=0

  Restore the specfied current memory channel.
- virtual Error GetMemoryChannelInfo (unsigned int ∗pNumChannels)=0

  Query the camera for memory channel support.

Embedded Image Information

These functions deal with embedded image information control on the camera.

- virtual Error GetEmbeddedImageInfo (EmbeddedImageInfo ∗pInfo)=0

  Get the current status of the embedded image information register, as well as the availability of each embedded property.
- virtual Error SetEmbeddedImageInfo (EmbeddedImageInfo ∗pInfo)=0

  Sets the on/off values of the embedded image information structure to the camera.

Register Operation

These functions deal with register operation on the camera.

- virtual Error WriteRegister (unsigned int address, unsigned int value, bool broadcast=false)=0

  Write to the specified register on the camera.
- virtual Error ReadRegister (unsigned int address, unsigned int ∗pValue)=0

  Read the specified register from the camera.
- virtual Error WriteRegisterBlock (unsigned short addressHigh, unsigned int addressLow, const unsigned int ∗pBuffer, unsigned int length)=0

  Write to the specified register block on the camera.
- virtual Error ReadRegisterBlock (unsigned short addressHigh, unsigned int addressLow, unsigned int ∗p←Buffer, unsigned int length)=0

  Read from the specified register block on the camera.
- virtual Error GetCycleTime (TimeStamp ∗timeStamp)=0

  Returns a Timestamp struct containing 1394 CYCLE_TIME information.
- virtual Error GetStats (CameraStats ∗pStats)=0
- virtual Error ResetStats ()=0
- virtual Error RegisterEvent (EventOptions ∗pOpts)=0
- virtual Error DeregisterEvent (EventOptions ∗pOpts)=0
- virtual Error RegisterAllEvents (EventOptions ∗pOpts)=0
- virtual Error DeregisterAllEvents (void)=0
- static const char ∗ GetRegisterString (unsigned int registerVal)

  Returns a text representation of the register value.

9.5.1 Detailed Description

The CameraBase class is an abstract base class that defines a general interface to a camera.

9.5.2 Constructor & Destructor Documentation

9.5.2.1 CameraBase()

```
CameraBase ( )  [inline]
```

Default constructor.

9.5.2.2 ∼CameraBase()

```
virtual ∼CameraBase ( )  [inline], [virtual]
```

Default destructor.

9.5.3 Member Function Documentation

9.5.3.1 Connect()

```
virtual Error Connect (
            PGRGuid * pGuid = NULL )  [pure virtual]
```

Connects the camera object to the camera specified by the GUID.

If the guid is omitted or set to NULL, the connection will be made to the first camera detected on the PC (i.e. index = 0).

Parameters

pGuid	The unique identifier for a specific camera on the PC.

See also

BusManager::GetCameraFromIndex()
BusManager::GetCameraFromSerialNumber()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.2 DeregisterAllEvents()

```
virtual Error DeregisterAllEvents (
            void  )  [pure virtual]
```

Implemented in GigECamera, and Camera.

9.5.3.3 DeregisterEvent()

```
virtual Error DeregisterEvent (
            EventOptions * pOpts )  [pure virtual]
```

Implemented in GigECamera, and Camera.

9.5.3.4 Disconnect()

```
virtual Error Disconnect ( )  [pure virtual]
```

Disconnects the camera object from the camera.

This allows another physical camera specified by a GUID to be connected to the camera object.

See also

Connect()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.5 EnableLUT()

```
virtual Error EnableLUT (
            bool on )  [pure virtual]
```

Enable or disable LUT functionality on the camera.

Parameters

on	Whether to enable or disable LUT.

See also

GetLUTInfo()
GetLUTChannel()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.6 FireSoftwareTrigger()

```
virtual Error FireSoftwareTrigger (
            bool broadcast = false )  [pure virtual]
```

Fire the software trigger according to the DCAM specifications.

Parameters

broadcast	Whether the action should be broadcast.

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.7 GetActiveLUTBank()

```
virtual Error GetActiveLUTBank (
            unsigned int * pActiveBank )  [pure virtual]
```

Get the LUT bank that is currently being used.

For cameras with PGR LUT, the active bank is always 0.

Parameters

pActiveBank	The currently active bank.

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.8 GetCameraInfo()

```
virtual Error GetCameraInfo (
            CameraInfo * pCameraInfo )  [pure virtual]
```

Retrieves information from the camera such as serial number, model name and other camera information.

Parameters

pCameraInfo	Pointer to the camera information structure to be filled.

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.9 GetConfiguration()

```
virtual Error GetConfiguration (
            FC2Config * pConfig )  [pure virtual]
```

Get the configuration associated with the camera object.

Parameters

pConfig	Pointer to the configuration structure to be filled.

See also

SetConfiguration()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.10 GetCycleTime()

```
virtual Error GetCycleTime (
            TimeStamp * timeStamp )  [pure virtual]
```

Returns a Timestamp struct containing 1394 CYCLE_TIME information.

Parameters

registerVal	The register value to query.

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.11 GetEmbeddedImageInfo()

```
virtual Error GetEmbeddedImageInfo (
             EmbeddedImageInfo * pInfo )  [pure virtual]
```

Get the current status of the embedded image information register, as well as the availability of each embedded property.

Parameters

pInfo	Structure to be filled.

See also

SetEmbeddedImageInfo()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.12 GetGPIOPinDirection()

```
virtual Error GetGPIOPinDirection (
             unsigned int pin,
             unsigned int * pDirection )  [pure virtual]
```

Get the GPIO pin direction for the specified pin.

This is not a required call when using the trigger or strobe functions as the pin direction is set automatically internally.

Parameters

pin	Pin to get the direction for.
pDirection	Direction of the pin. 0 for input, 1 for output.

See also

SetGPIOPinDirection()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.13 GetLUTBankInfo()

```
virtual Error GetLUTBankInfo (
             unsigned int bank,
             bool * pReadSupported,
             bool * pWriteSupported )  [pure virtual]
```

Query the read/write status of a single LUT bank.

Parameters

bank	The bank to query.
pReadSupported	Whether reading from the bank is supported.
pWriteSupported	Whether writing to the bank is supported.

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.14 GetLUTChannel()

```
virtual Error GetLUTChannel (
             unsigned int bank,
             unsigned int channel,
             unsigned int sizeEntries,
             unsigned int * pEntries )  [pure virtual]
```

Get the LUT channel settings from the camera.

Parameters

bank	Bank to retrieve.
channel	Channel to retrieve.
sizeEntries	Number of entries in LUT table to read.
pEntries	Array to store LUT entries.

See also

GetLUTInfo()
EnableLUT()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.15 GetLUTInfo()

```
virtual Error GetLUTInfo (
             LUTData * pData )  [pure virtual]
```

Query if LUT support is available on the camera.

Note that some cameras may report support for the LUT and return an inputBitDepth of 0. In these cases use log2(numEntries) for the inputBitDepth.

Parameters

pData	The LUT structure to be filled.

See also

EnableLUT()
GetLUTChannel()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.16 GetMemoryChannel()

```
virtual Error GetMemoryChannel (
             unsigned int * pCurrentChannel )  [pure virtual]
```

Retrieve the current memory channel from the camera.

Parameters

pCurrentChannel	Current memory channel.

See also

SaveToMemoryChannel()
RestoreFromMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.17 GetMemoryChannelInfo()

```
virtual Error GetMemoryChannelInfo (
            unsigned int * pNumChannels )  [pure virtual]
```

Query the camera for memory channel support.

If the number of channels is 0, then memory channel support is not available.

Parameters

pNumChannels	Number of memory channels supported.

See also

GetMemoryChannel()
SaveToMemoryChannel()
RestoreFromMemoryChannel()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.18 GetProperty()

```
virtual Error GetProperty (
            Property * pProp )  [pure virtual]
```

Reads the settings for the specified property from the camera.

The property type must be specified in the Property structure passed into the function in order for the function to succeed. If auto is on, the integer and abs values returned may not be consistent with each other.

Parameters

pProp	Pointer to the Property structure to be filled.

See also

GetPropertyInfo()
SetProperty()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.19 GetPropertyInfo()

```
virtual Error GetPropertyInfo (
            PropertyInfo * pPropInfo )  [pure virtual]
```

Retrieves information about the specified camera property.

The property type must be specified in the PropertyInfo structure passed into the function in order for the function to succeed.

Parameters

pPropInfo	Pointer to the PropertyInfo structure to be filled.

See also

GetProperty()
SetProperty()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.20 GetRegisterString()

```
static const char* GetRegisterString (
            unsigned int registerVal )  [static]
```

Returns a text representation of the register value.

Parameters

registerVal	The register value to query.

Returns

The text representation of the register.

9.5.3.21 GetStats()

```
virtual Error GetStats (
            CameraStats * pStats )  [pure virtual]
```

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.22 GetStrobe()

```
virtual Error GetStrobe (
            StrobeControl * pStrobeControl )  [pure virtual]
```

Retrieve current strobe settings from the camera.

The strobe pin must be specified in the structure before being passed in to the function.

Parameters

pStrobeControl	Structure to receive strobe settings.

See also

GetStrobeInfo()
SetStrobe()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.23 GetStrobeInfo()

```
virtual Error GetStrobeInfo (
            StrobeInfo * pStrobeInfo )  [pure virtual]
```

Retrieve strobe information from the camera.

Parameters

pStrobeInfo	Structure to receive strobe information.

See also

GetStrobe()
SetStrobe()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.24 GetTriggerDelay()

```
virtual Error GetTriggerDelay (
            TriggerDelay * pTriggerDelay )  [pure virtual]
```

Retrieve current trigger delay settings from the camera.

Parameters

pTriggerDelay	Structure to receive trigger delay settings.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.25 GetTriggerDelayInfo()

```
virtual Error GetTriggerDelayInfo (
            TriggerDelayInfo * pTriggerDelayInfo )  [pure virtual]
```

Retrieve trigger delay information from the camera.

Parameters

pTriggerDelayInfo	Structure to receive trigger delay information.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.26 GetTriggerMode()

```
virtual Error GetTriggerMode (
            TriggerMode * pTriggerMode )  [pure virtual]
```

Retrieve current trigger settings from the camera.

Parameters

pTriggerMode	Structure to receive trigger mode settings.

See also

GetTriggerModeInfo()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.27 GetTriggerModeInfo()

```
virtual Error GetTriggerModeInfo (
            TriggerModeInfo * pTriggerModeInfo )  [pure virtual]
```

Retrieve trigger information from the camera.

Parameters

pTriggerModeInfo	Structure to receive trigger information.

See also

GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.28 IsConnected()

```
virtual bool IsConnected ( )  [pure virtual]
```

Checks if the camera object is connected to a physical camera specified by a GUID.

See also

Connect()
Disconnect()

Returns

Whether Connect() was called on the camera object.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.29 ReadRegister()

```
virtual Error ReadRegister (
             unsigned int address,
             unsigned int * pValue )  [pure virtual]
```

Read the specified register from the camera.

Parameters

address	DCAM address to be read from.
pValue	The value that is read.

See also

WriteRegister()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.30 ReadRegisterBlock()

```
virtual Error ReadRegisterBlock (
            unsigned short addressHigh,
            unsigned int addressLow,
            unsigned int * pBuffer,
            unsigned int length ) [pure virtual]
```

Read from the specified register block on the camera.

Parameters

addressHigh	Top 16 bits of the 48 bit absolute address to read from.
addressLow	Bottom 32 bits of the 48 bits absolute address to read from.
pBuffer	Array to store read data.
length	Size of array, in quadlets.

See also

WriteRegisterBlock()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.31 RegisterAllEvents()

```
virtual Error RegisterAllEvents (
            EventOptions * pOpts ) [pure virtual]
```

Implemented in GigECamera, and Camera.

9.5.3.32 RegisterEvent()

```
virtual Error RegisterEvent (
            EventOptions * pOpts )  [pure virtual]
```

Implemented in GigECamera, and Camera.

9.5.3.33 ResetStats()

```
virtual Error ResetStats ( )  [pure virtual]
```

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.34 RestoreFromMemoryChannel()

```
virtual Error RestoreFromMemoryChannel (
            unsigned int channel )  [pure virtual]
```

Restore the specfied current memory channel.

Parameters

channel	Memory channel to restore from.

See also

GetMemoryChannel()
SaveToMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.35 RetrieveBuffer()

```
virtual Error RetrieveBuffer (
            Image * pImage )  [pure virtual]
```

Retrieves the the next image object containing the next image.

If the grab mode has not been set, or has been set to DROP_FRAMES the default behavior is to requeue images for DMA if they have not been retrieved by the time the next image transfer completes. If BUFFER_FRAMES is specified, the next image in the sequence will be retrieved. Note that for the BUFFER_FRAMES case, if retrieval does not keep up with the DMA process, images will be lost. The default behavior is to perform DROP_FRAMES image retrieval.

Parameters

pImage	Pointer to Image object to store image data.

See also

StartCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.36 SaveToMemoryChannel()

```
virtual Error SaveToMemoryChannel (
            unsigned int channel )  [pure virtual]
```

Save the current settings to the specfied current memory channel.

Parameters

channel	Memory channel to save to.

See also

GetMemoryChannel()
RestoreFromMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.37 SetActiveLUTBank()

```
virtual Error SetActiveLUTBank (
            unsigned int activeBank )  [pure virtual]
```

Set the LUT bank that will be used.

Parameters

activeBank	The bank to be set as active.

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.38 SetCallback()

```
virtual Error SetCallback (
            ImageEventCallback callbackFn,
            const void * pCallbackData = NULL )  [pure virtual]
```

Sets the callback data to be used on completion of image transfer.

To clear the current stored callback data, pass in NULL for both arguments.

Parameters

callbackFn	A function to be called when a new image is received.
pCallbackData	A pointer to data that can be passed to the callback function.

See also

StartCapture()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.39 SetConfiguration()

```
virtual Error SetConfiguration (
            const FC2Config * pConfig )  [pure virtual]
```

Set the configuration associated with the camera object.

Parameters

pConfig	Pointer to the configuration structure to be used.

See also

GetConfiguration()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.40 SetEmbeddedImageInfo()

```
virtual Error SetEmbeddedImageInfo (
            EmbeddedImageInfo * pInfo )  [pure virtual]
```

Sets the on/off values of the embedded image information structure to the camera.

Parameters

pInfo	Structure to be used.

See also

GetEmbeddedImageInfo()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.41 SetGPIOPinDirection()

```
virtual Error SetGPIOPinDirection (
            unsigned int pin,
            unsigned int direction,
            bool broadcast = false )  [pure virtual]
```

Set the GPIO pin direction for the specified pin.

This is useful if there is a need to set the pin into an input pin (i.e. to read the voltage) off the pin without setting it as a trigger source. This is not a required call when using the trigger or strobe functions as the pin direction is set automatically internally.

Parameters

pin	Pin to get the direction for.
direction	Direction of the pin. 0 for input, 1 for output.
broadcast	Whether the action should be broadcast.

See also

GetGPIOPinDirection()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.42 SetLUTChannel()

```
virtual Error SetLUTChannel (
             unsigned int bank,
             unsigned int channel,
             unsigned int sizeEntries,
             const unsigned int * pEntries )  [pure virtual]
```

Set the LUT channel settings to the camera.

Parameters

bank	Bank to set.
channel	Channel to set.
sizeEntries	Number of entries in LUT table to write. This must be the same size as numEntries returned by GetLutInfo().
pEntries	Array containing LUT entries to write.

See also

GetLUTInfo()
EnableLUT()
GetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.43 SetProperty()

```
virtual Error SetProperty (
             const Property * pProp,
             bool broadcast = false )  [pure virtual]
```

Writes the settings for the specified property to the camera.

The property type must be specified in the Property structure passed into the function in order for the function to succeed. The absControl flag controls whether the absolute or integer value is written to the camera. Use GetPropertyInfo() to query which options are available for a specific property.

Parameters

pProp	Pointer to the Property structure to be used.
broadcast	Whether the action should be broadcast.

See also

GetPropertyInfo()
GetProperty()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.44 SetStrobe()

```
virtual Error SetStrobe (
             const StrobeControl * pStrobeControl,
             bool broadcast = false )  [pure virtual]
```

Set current strobe settings to the camera.

The strobe pin must be specified in the structure before being passed in to the function.

Parameters

pStrobeControl	Structure providing strobe settings.
broadcast	Whether the action should be broadcast.

See also

GetStrobeInfo()
GetStrobe()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.45 SetTriggerDelay()

```
virtual Error SetTriggerDelay (
            const TriggerDelay * pTriggerDelay,
            bool broadcast = false )  [pure virtual]
```

Set the specified trigger delay settings to the camera.

Parameters

pTriggerDelay	Structure providing trigger delay settings.
broadcast	Whether the action should be broadcast.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.46 SetTriggerMode()

```
virtual Error SetTriggerMode (
            const TriggerMode * pTriggerMode,
            bool broadcast = false )  [pure virtual]
```

Set the specified trigger settings to the camera.

Parameters

pTriggerMode	Structure providing trigger mode settings.
broadcast	Whether the action should be broadcast.

See also

GetTriggerModeInfo()
GetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.47 SetUserBuffers()

```
virtual Error SetUserBuffers (
              unsigned char *const pMemBuffers,
              int size,
              int numBuffers )  [pure virtual]
```

Specify user allocated buffers to use as image data buffers.

To prevent image tearing, the size of each buffer should be equal to ((unsigned int)(bufferSize + packetSize - 1)/packetSize) $*$ packetSize. The total size should be (size $*$ numBuffers) or larger. The packet Size that should be used differs between interfaces: Firewire: Use the Format7 packet size. Usb2: First round to Format7 packet size then round to 512 bytes. Usb3: Use a packet size of 1024 bytes. GigE: No need to do any rounding on GigE

Parameters

pMemBuffers	Pointer to memory buffers to be written to.
size	The size of each buffer (in bytes).
numBuffers	Number of buffers in the array.

See also

StartCapture()
RetrieveBuffer()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.48 StartCapture()

```
virtual Error StartCapture (
             ImageEventCallback callbackFn = NULL,
             const void * pCallbackData = NULL )  [pure virtual]
```

Starts isochronous image capture.

It will use either the current video mode or the most recently set video mode of the camera. The optional callback function parameter is called on completion of image transfer. When a callback function is specified, the grab mode will determine how images are delivered. If the grab mode has not been set, or has been set to DROP_FRAM↩ES the default behavior is to requeue images for DMA if they have not been delivered by the time the next image transfer completes. If BUFFER_FRAMES is specified, the next image in the sequence will be delivered. Note that for the BUFFER_FRAMES case, if delivery does not keep up with the DMA process, images will be lost. The default behavior is to perform DROP_FRAMES image delivery Alternatively, the callback parameter can be set to NULL and RetrieveBuffer() can be called as a blocking call to get the image data.

Parameters

callbackFn	A function to be called when a new image is received.
pCallbackData	A pointer to data that can be passed to the callback function.

See also

RetrieveBuffer()
StartSyncCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.49 StartSyncCapture()

```
static Error StartSyncCapture (
             unsigned int numCameras,
             const CameraBase ** ppCameras,
             const ImageEventCallback * pCallbackFns = NULL,
             const void ** pCallbackDataArray = NULL )  [static]
```

Starts isochronous image capture on multiple cameras.

On each frame, the time stamps across the cameras are aligned which means the frames are synchronized. Note that the cameras must be synchronized by external means in order for this function to work. This means that the cameras should either be on the same bus, hardware synchronized (e.g. through triggering) or Multisync is running. This function is only used with firewire cameras.

Parameters

numCameras	Number of Camera objects in the ppCameras array.
ppCameras	Array of pointers to Camera objects containing the cameras to be started and synchronized.
pCallbackFns	Array of callback functions for each camera.
pCallbackDataArray	Array of callback data pointers.

See also

RetrieveBuffer()
StartCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

9.5.3.50 StopCapture()

```
virtual Error StopCapture ( )  [pure virtual]
```

Stops isochronous image transfer and cleans up all associated resources.

If an image callback function (specified in the StartCapture() call) is currently executing, StopCapture() will not return until after the callback has completed.

See also

StartCapture()
RetrieveBuffer()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.51 WaitForBufferEvent()

```
virtual Error WaitForBufferEvent (
             Image * pImage,
             unsigned int eventNumber )  [pure virtual]
```

Retrieves the next image event containing the next part of the image.

Parameters

pImage	Pointer to Image object to store image data.
eventNumber	The event number to wait for.

See also

StartCapture()
RetrieveBuffer()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.52 WriteRegister()

```
virtual Error WriteRegister (
            unsigned int address,
            unsigned int value,
            bool broadcast = false )  [pure virtual]
```

Write to the specified register on the camera.

Parameters

address	DCAM address to be written to.
value	The value to be written.
broadcast	Whether the action should be broadcast.

See also

ReadRegister()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.3.53 WriteRegisterBlock()

```
virtual Error WriteRegisterBlock (
             unsigned short addressHigh,
             unsigned int addressLow,
             const unsigned int * pBuffer,
             unsigned int length ) [pure virtual]
```

Write to the specified register block on the camera.

Parameters

addressHigh	Top 16 bits of the 48 bit absolute address to write to.
addressLow	Bottom 32 bits of the 48 bits absolute address to write to.
pBuffer	Array containing data to be written.
length	Size of array, in quadlets.

See also

ReadRegisterBlock()

Returns

An Error indicating the success or failure of the function.

Implemented in GigECamera, Camera, and GCCamera.

9.5.4 Member Data Documentation

9.5.4.1 m_pCameraData

```
CameraData* m_pCameraData [protected]
```

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

- CameraBase.h

9.6 CameraControlDlg Class Reference

The CameraControlDlg object represents a dialog that provides a graphical interface to a specified camera.

Public Member Functions

- CameraControlDlg ()

  Default constructor.
- ∼CameraControlDlg ()

  Default destructor.
- void Connect (CameraBase ∗pCamera)

  Connect dialog to a camera.
- void Disconnect ()

  Disconnect a connected camera from the dialog.
- void Show ()

  Show the dialog.
- void Show (void ∗pParent)

  Show the dialog.
- void ShowModal ()

  Show the modal dialog.
- void ShowModal (void ∗pParent)

  Show the modal dialog.
- void Hide ()

  Hide the dialog.
- bool IsVisible ()

  Get the visibility of the dialog.
- void SetTitle (const char ∗title)

  Change the title of the window.

9.6.1 Detailed Description

The CameraControlDlg object represents a dialog that provides a graphical interface to a specified camera.

9.6.2 Constructor & Destructor Documentation

9.6.2.1 CameraControlDlg()

```
CameraControlDlg ( )
```

Default constructor.

9.6.2.2 ∼CameraControlDlg()

```
∼CameraControlDlg ( )
```

Default destructor.

9.6.3 Member Function Documentation

9.6.3.1 Connect()

```
void Connect (
            CameraBase * pCamera )
```

Connect dialog to a camera.

Parameters

pCamera	Camera object to connect the dialog to.

9.6.3.2 Disconnect()

```
void Disconnect ( )
```

Disconnect a connected camera from the dialog.

9.6.3.3 Hide()

```
void Hide ( )
```

Hide the dialog.

9.6.3.4 IsVisible()

```
bool IsVisible ( )
```

Get the visibility of the dialog.

Returns

Whether the dialog is visible.

9.6.3.5 SetTitle()

```
void SetTitle (
            const char * title )
```

Change the title of the window.

This has to be called after calling Connect().

Parameters

title	Null-terminated string representing the title.

9.6.3.6 Show() [1/2]

```
void Show ( )
```

Show the dialog.

9.6.3.7 Show() [2/2]

```
void Show (
            void * pParent )
```

Show the dialog.

9.6.3.8 ShowModal() [1/2]

```
void ShowModal ( )
```

Show the modal dialog.

9.6.3.9 ShowModal() [2/2]

```
void ShowModal (
            void * pParent )
```

Show the modal dialog.

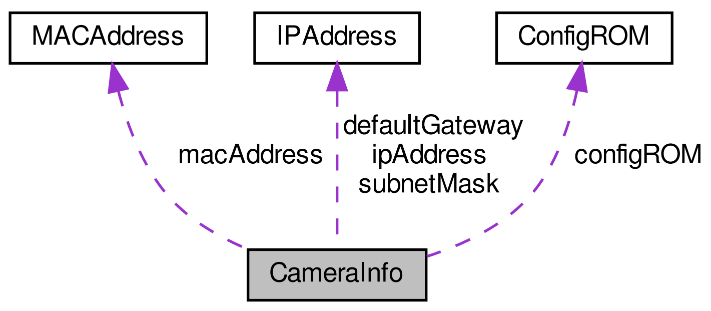
The documentation for this class was generated from the following file:

- FlyCapture2GUI.h

9.7 CameraInfo Struct Reference

Camera information.

Collaboration diagram for CameraInfo:



Public Member Functions

- CameraInfo ()

Public Attributes

- unsigned int serialNumber

    Device serial number.
- InterfaceType interfaceType

    Interface type.
- DriverType driverType

    Driver type.
- bool isColorCamera

    Flag indicating if this is a color camera.
- char modelName [sk_maxStringLength]

    Device model name.
- char vendorName [sk_maxStringLength]

    Device vendor name.
- char sensorInfo [sk_maxStringLength]

    String detailing the sensor information.
- char sensorResolution [sk_maxStringLength]

    String providing the sensor resolution.
- char driverName [sk_maxStringLength]

    Driver name of driver being used.
- char firmwareVersion [sk_maxStringLength]

    Firmware version of camera.
- char firmwareBuildTime [sk_maxStringLength]

    Firmware build time.

- BusSpeed maximumBusSpeed

  Maximum bus speed.
- BayerTileFormat bayerTileFormat

  Bayer tile format.
- unsigned short busNumber

  Bus number, set to 0 for GigE and USB cameras.
- unsigned short nodeNumber

  ieee1394 Node number, set to 0 for GigE and USB cameras
- PCIeBusSpeed pcieBusSpeed

  PCIe Bus Speed, set to PCIE_BUSSPEED_UNKNOWN for unsupported drivers.
- unsigned int reserved [16]

  Reserved for future use.

IIDC specific information

- unsigned int iidcVer

  DCAM version.
- ConfigROM configROM

  Configuration ROM data.

GigE specific information

- unsigned int gigEMajorVersion

  GigE Vision version.
- unsigned int gigEMinorVersion

  GigE Vision minor version.
- char userDefinedName [sk_maxStringLength]

  User defined name.
- char xmlURL1 [sk_maxStringLength]

  XML URL 1.
- char xmlURL2 [sk_maxStringLength]

  XML URL 2.
- MACAddress macAddress

  MAC address.
- IPAddress ipAddress

  IP address.
- IPAddress subnetMask

  Subnet mask.
- IPAddress defaultGateway

  Default gateway.
- unsigned int ccpStatus

  Status/Content of CCP register.
- unsigned int applicationIPAddress

  Local Application IP Address.
- unsigned int applicationPort

  Local Application port.

9.7.1 Detailed Description

Camera information.

9.7.2 Constructor & Destructor Documentation

9.7.2.1 CameraInfo()

```
CameraInfo ( )  [inline]
```

9.7.3 Member Data Documentation

9.7.3.1 applicationIPAddress

```
unsigned int applicationIPAddress
```

Local Application IP Address.

9.7.3.2 applicationPort

```
unsigned int applicationPort
```

Local Application port.

9.7.3.3 bayerTileFormat

```
BayerTileFormat bayerTileFormat
```

Bayer tile format.

9.7.3.4 busNumber

```
unsigned short busNumber
```

Bus number, set to 0 for GigE and USB cameras.

9.7.3.5 ccpStatus

```
unsigned int ccpStatus
```

Status/Content of CCP register.

9.7.3.6 configROM

```
ConfigROM configROM
```

Configuration ROM data.

9.7.3.7 defaultGateway

```
IPAddress defaultGateway
```

Default gateway.

9.7.3.8 driverName

```
char driverName[sk_maxStringLength]
```

Driver name of driver being used.

9.7.3.9 driverType

```
DriverType driverType
```

Driver type.

9.7.3.10 firmwareBuildTime

```
char firmwareBuildTime[sk_maxStringLength]
```

Firmware build time.

9.7.3.11 firmwareVersion

```
char firmwareVersion[sk_maxStringLength]
```

Firmware version of camera.

9.7.3.12 gigEMajorVersion

```
unsigned int gigEMajorVersion
```

GigE Vision version.

9.7.3.13 gigEMinorVersion

```
unsigned int gigEMinorVersion
```

GigE Vision minor version.

9.7.3.14 iidcVer

```
unsigned int iidcVer
```

DCAM version.

9.7.3.15 interfaceType

```
InterfaceType interfaceType
```

Interface type.

9.7.3.16 ipAddress

```
IPAddress ipAddress
```

IP address.

9.7.3.17 isColorCamera

```
bool isColorCamera
```

Flag indicating if this is a color camera.

9.7.3.18 macAddress

```
MACAddress macAddress
```

MAC address.

9.7.3.19 maximumBusSpeed

```
BusSpeed maximumBusSpeed
```

Maximum bus speed.

9.7.3.20 modelName

```
char modelName[sk_maxStringLength]
```

Device model name.

9.7.3.21 nodeNumber

```
unsigned short nodeNumber
```

ieee1394 Node number, set to 0 for GigE and USB cameras

9.7.3.22 pcieBusSpeed

```
PCIeBusSpeed pcieBusSpeed
```

PCIe Bus Speed, set to PCIE_BUSSPEED_UNKNOWN for unsupported drivers.

9.7.3.23 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

9.7.3.24 sensorInfo

```
char sensorInfo[sk_maxStringLength]
```

String detailing the sensor information.

9.7.3.25 sensorResolution

```
char sensorResolution[sk_maxStringLength]
```

String providing the sensor resolution.

9.7.3.26 serialNumber

```
unsigned int serialNumber
```

Device serial number.

9.7.3.27 subnetMask

```
IPAddress subnetMask
```

Subnet mask.

9.7.3.28 userDefinedName

```
char userDefinedName[sk_maxStringLength]
```

User defined name.

9.7.3.29 vendorName

```
char vendorName[sk_maxStringLength]
```

Device vendor name.

9.7.3.30 xmlURL1

```
char xmlURL1[sk_maxStringLength]
```

XML URL 1.

9.7.3.31 xmlURL2

```
char xmlURL2[sk_maxStringLength]
```

XML URL 2.

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

- FlyCapture2Defs.h

9.8 CameraSelectionDlg Class Reference

The CameraSelectionDlg object represents a dialog that provides a graphical interface that lists the number of cameras available to the library.

Public Member Functions

- CameraSelectionDlg ()

  Default constructor.
- ∼CameraSelectionDlg ()

  Default destructor.
- void ShowModal (bool ∗pOk, PGRGuid ∗pGuid, unsigned int ∗pSize)

  Show the CameraSelectionDlg.
- void SetTitle (const char ∗title)

  Set the window title.

9.8.1 Detailed Description

The CameraSelectionDlg object represents a dialog that provides a graphical interface that lists the number of cameras available to the library.

Any GigE cameras that were connected prior to creating a CameraSelectionDlg will lose CCP after the creation. Consider creating a CameraSelectionDlg prior to connecting any GigE cameras or calling connect on any outstanding GigE camera.

9.8.2 Constructor & Destructor Documentation

9.8.2.1 CameraSelectionDlg()

```
CameraSelectionDlg ( )
```

Default constructor.

9.8.2.2 ∼CameraSelectionDlg()

```
∼CameraSelectionDlg ( )
```

Default destructor.

9.8.3 Member Function Documentation

9.8.3.1 SetTitle()

```
void SetTitle (
             const char ∗ title )
```

Set the window title.

Parameters

title	Null-terminated string representing the title.

9.8.3.2 ShowModal()

```
void ShowModal (
             bool ∗ pOk,
             PGRGuid ∗ pGuid,
             unsigned int ∗ pSize )
```

Show the CameraSelectionDlg.

Parameters

pOk	Whether Ok (true) or Cancel (false) was clicked.
pGuid	Array of PGRGuids containing the selected cameras.
pSize	Size of PGRGuid array.

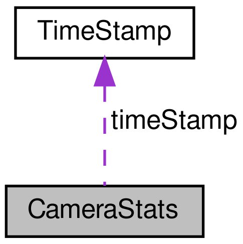
The documentation for this class was generated from the following file:

- FlyCapture2GUI.h

9.9 CameraStats Struct Reference

Camera diagnostic information.

Collaboration diagram for CameraStats:



Public Member Functions

- CameraStats ()

Public Attributes

- unsigned int imageDropped
- unsigned int imageCorrupt
- unsigned int imageXmitFailed
- unsigned int imageDriverDropped
- unsigned int regReadFailed
- unsigned int regWriteFailed
- unsigned int portErrors
- bool cameraPowerUp
- float cameraVoltages [8]
- unsigned int numVoltages

    The number of voltage registers available.
- float cameraCurrents [8]
- unsigned int numCurrents

    The number of current registers available.
- unsigned int temperature
- unsigned int timeSinceInitialization
- unsigned int timeSinceBusReset
- TimeStamp timeStamp
- unsigned int numResendPacketsRequested
- unsigned int numResendPacketsReceived
- unsigned int reserved [16]

    Reserved for future use.

9.9.1 Detailed Description

Camera diagnostic information.

9.9.2 Constructor & Destructor Documentation

9.9.2.1 CameraStats()

```
CameraStats ( )  [inline]
```

9.9.3 Member Data Documentation

9.9.3.1 cameraCurrents

```
float cameraCurrents[8]
```

9.9.3.2 cameraPowerUp

```
bool cameraPowerUp
```

9.9.3.3 cameraVoltages

```
float cameraVoltages[8]
```

9.9.3.4 imageCorrupt

```
unsigned int imageCorrupt
```

9.9.3.5 imageDriverDropped

```
unsigned int imageDriverDropped
```

9.9.3.6 imageDropped

```
unsigned int imageDropped
```

9.9.3.7 imageXmitFailed

```
unsigned int imageXmitFailed
```

9.9.3.8 numCurrents

```
unsigned int numCurrents
```

The number of current registers available.

0: the values in cameraCurrents[] are invalid.

9.9.3.9 numResendPacketsReceived

```
unsigned int numResendPacketsReceived
```

9.9.3.10 numResendPacketsRequested

```
unsigned int numResendPacketsRequested
```

9.9.3.11 numVoltages

```
unsigned int numVoltages
```

The number of voltage registers available.

0: the values in cameraVoltages[] are invalid.

9.9.3.12 portErrors

```
unsigned int portErrors
```

9.9.3.13 regReadFailed

```
unsigned int regReadFailed
```

9.9.3.14 regWriteFailed

```
unsigned int regWriteFailed
```

9.9.3.15 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

9.9.3.16 temperature

```
unsigned int temperature
```

9.9.3.17 timeSinceBusReset

```
unsigned int timeSinceBusReset
```

9.9.3.18 timeSinceInitialization

```
unsigned int timeSinceInitialization
```

9.9.3.19 timeStamp

```
TimeStamp timeStamp
```

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

- FlyCapture2Defs.h

9.10 ConfigROM Struct Reference

Camera configuration ROM.

Public Member Functions

- ConfigROM ()

Public Attributes

- unsigned int nodeVendorId

  Vendor ID of a node.
- unsigned int chipIdHi

  Chip ID (high part).
- unsigned int chipIdLo

  Chip ID (low part).
- unsigned int unitSpecId

  Unit Spec ID, usually 0xa02d.
- unsigned int unitSWVer

  Unit software version.
- unsigned int unitSubSWVer

  Unit sub software version.
- unsigned int vendorUniqueInfo_0

  Vendor unique info 0.
- unsigned int vendorUniqueInfo_1

  Vendor unique info 1.
- unsigned int vendorUniqueInfo_2

  Vendor unique info 2.
- unsigned int vendorUniqueInfo_3

  Vendor unique info 3.
- char pszKeyword [sk_maxStringLength]

  Keyword.
- unsigned int reserved [16]

  Reserved for future use.

9.10.1 Detailed Description

Camera configuration ROM.

9.10.2 Constructor & Destructor Documentation

9.10.2.1 ConfigROM()

```
ConfigROM ( )  [inline]
```

9.10.3 Member Data Documentation

9.10.3.1 chipIdHi

```
unsigned int chipIdHi
```

Chip ID (high part).

9.10.3.2 chipIdLo

```
unsigned int chipIdLo
```

Chip ID (low part).

9.10.3.3 nodeVendorId

```
unsigned int nodeVendorId
```

Vendor ID of a node.

9.10.3.4 pszKeyword

```
char pszKeyword[sk_maxStringLength]
```

Keyword.

9.10.3.5 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

9.10.3.6 unitSpecId

```
unsigned int unitSpecId
```

Unit Spec ID, usually 0xa02d.

9.10.3.7 unitSubSWVer

```
unsigned int unitSubSWVer
```

Unit sub software version.

9.10.3.8 unitSWVer

```
unsigned int unitSWVer
```

Unit software version.

9.10.3.9 vendorUniqueInfo_0

```
unsigned int vendorUniqueInfo_0
```

Vendor unique info 0.

9.10.3.10 vendorUniqueInfo_1

```
unsigned int vendorUniqueInfo_1
```

Vendor unique info 1.

9.10.3.11 vendorUniqueInfo_2

```
unsigned int vendorUniqueInfo_2
```

Vendor unique info 2.

9.10.3.12 vendorUniqueInfo_3

```
unsigned int vendorUniqueInfo_3
```

Vendor unique info 3.

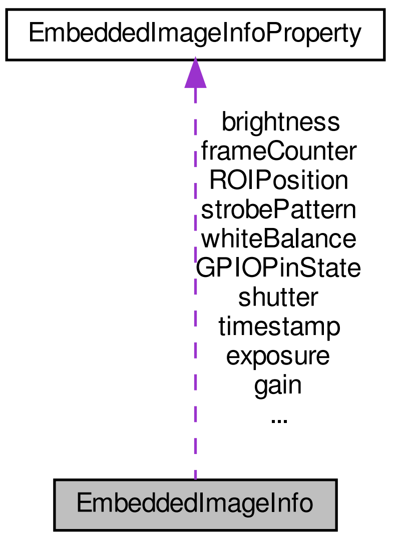
The documentation for this struct was generated from the following file:

- FlyCapture2Defs.h

9.11 EmbeddedImageInfo Struct Reference

Properties of the possible embedded image information.

Collaboration diagram for EmbeddedImageInfo:



Public Attributes

- EmbeddedImageInfoProperty timestamp
- EmbeddedImageInfoProperty gain
- EmbeddedImageInfoProperty shutter
- EmbeddedImageInfoProperty brightness
- EmbeddedImageInfoProperty exposure
- EmbeddedImageInfoProperty whiteBalance
- EmbeddedImageInfoProperty frameCounter
- EmbeddedImageInfoProperty strobePattern
- EmbeddedImageInfoProperty GPIOPinState
- EmbeddedImageInfoProperty ROIPosition

9.11.1 Detailed Description

Properties of the possible embedded image information.

9.11.2 Member Data Documentation

9.11.2.1 brightness

```
EmbeddedImageInfoProperty brightness
```

9.11.2.2 exposure

```
EmbeddedImageInfoProperty exposure
```

9.11.2.3 frameCounter

```
EmbeddedImageInfoProperty frameCounter
```

9.11.2.4 gain

```
EmbeddedImageInfoProperty gain
```

9.11.2.5 GPIOPinState

```
EmbeddedImageInfoProperty GPIOPinState
```

9.11.2.6 ROIPosition

```
EmbeddedImageInfoProperty ROIPosition
```

9.11.2.7 shutter

```
EmbeddedImageInfoProperty shutter
```

9.11.2.8 strobePattern

```
EmbeddedImageInfoProperty strobePattern
```

9.11.2.9 timestamp

```
EmbeddedImageInfoProperty timestamp
```

9.11.2.10 whiteBalance

```
EmbeddedImageInfoProperty whiteBalance
```

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

- FlyCapture2Defs.h

9.12 EmbeddedImageInfoProperty Struct Reference

Properties of a single embedded image info property.

Public Member Functions

- EmbeddedImageInfoProperty ()

Public Attributes

- bool available

  Whether this property is available.
- bool onOff

  Whether this property is on or off.

9.12.1 Detailed Description

Properties of a single embedded image info property.

9.12.2 Constructor & Destructor Documentation

9.12.2.1 EmbeddedImageInfoProperty()

```
EmbeddedImageInfoProperty ( )  [inline]
```

9.12.3 Member Data Documentation

9.12.3.1 available

```
bool available
```

Whether this property is available.

9.12.3.2 onOff

```
bool onOff
```

Whether this property is on or off.

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

- FlyCapture2Defs.h

9.13 Error Class Reference

The Error object represents an error that is returned from the library.

Public Member Functions

- Error ()

  Default constructor.
- Error (const Error &error)

  Copy constructor.
- virtual ∼Error ()

  Default destructor.
- virtual Error & operator= (const Error &error)

  Assignment operator.
- virtual bool operator== (const Error &error) const

  Equality operator.
- virtual bool operator== (const ErrorType &errorType) const

  Equality operator.
- virtual bool operator!= (const Error &error) const

  Inequality operator.
- virtual bool operator!= (const ErrorType &errorType) const

  Inequality operator.
- virtual ErrorType GetType () const

  Retrieve the ErrorType of the error.
- virtual const char ∗ GetDescription () const

  Retrieve the top level description of the error that occurred.
- virtual unsigned int GetLine () const

  Retrieve the line number where the error originated.
- virtual const char ∗ GetFilename () const

  Retrieve the source filename where the error originated.
- virtual Error GetCause () const

  Get the error which caused this error.
- virtual const char ∗ GetBuildDate () const

  Retrieve the build date of the file where the error originated.
- virtual const char ∗ CollectSupportInformation () const

  Retrieve the support information.
- virtual void PrintErrorTrace () const

  Print a formatted log trace to stderr.

Friends

- class InternalError

9.13.1 Detailed Description

The Error object represents an error that is returned from the library.

Overloaded operators allow comparisons against other Error objects or the ErrorType enumeration.

9.13.2 Constructor & Destructor Documentation

9.13.2.1 Error() [1/2]

```
Error ( )
```

Default constructor.

9.13.2.2 Error() [2/2]

```
Error (
             const Error & error )
```

Copy constructor.

9.13.2.3 ∼Error()

```
virtual ∼Error ( )  [virtual]
```

Default destructor.

9.13.3 Member Function Documentation

9.13.3.1 CollectSupportInformation()

```
virtual const char* CollectSupportInformation ( ) const  [virtual]
```

Retrieve the support information.

It is not implemented in this release.

Returns

A string containing support information.

9.13.3.2 GetBuildDate()

```
virtual const char* GetBuildDate ( ) const  [virtual]
```

Retrieve the build date of the file where the error originated.

Returns

A string with the build date and time.

9.13.3.3 GetCause()

```
virtual Error GetCause ( ) const  [virtual]
```

Get the error which caused this error.

Returns

An error object representing the cause of this error.

9.13.3.4 GetDescription()

```
virtual const char* GetDescription ( ) const  [virtual]
```

Retrieve the top level description of the error that occurred.

Returns

A string with the error description.

9.13.3.5 GetFilename()

```
virtual const char* GetFilename ( ) const  [virtual]
```

Retrieve the source filename where the error originated.

Returns

A string with the file name.

9.13.3.6 GetLine()

```
virtual unsigned int GetLine ( ) const  [virtual]
```

Retrieve the line number where the error originated.

Returns

The line number.

9.13.3.7 GetType()

```
virtual ErrorType GetType ( ) const  [virtual]
```

Retrieve the ErrorType of the error.

Returns

The ErrorType of the error.

9.13.3.8 operator"!=() [1/2]

```
virtual bool operator!= (
             const Error & error ) const  [virtual]
```

Inequality operator.

9.13.3.9 operator"!=() [2/2]

```
virtual bool operator!= (
             const ErrorType & errorType ) const  [virtual]
```

Inequality operator.

This overloaded operator compares the ErrorType of the Error against the specified ErrorType.

9.13.3.10 operator=()

```
virtual Error& operator= (
             const Error & error )  [virtual]
```

Assignment operator.

9.13.3.11 operator==() [1/2]

```
virtual bool operator== (
             const Error & error ) const  [virtual]
```

Equality operator.

9.13.3.12 operator==() [2/2]

```
virtual bool operator== (
             const ErrorType & errorType ) const  [virtual]
```

Equality operator.

This overloaded operator compares the ErrorType of the Error against the specified ErrorType.

9.13.3.13 PrintErrorTrace()

```
virtual void PrintErrorTrace ( ) const  [virtual]
```

Print a formatted log trace to stderr.

9.13.4 Friends And Related Function Documentation

9.13.4.1 InternalError

```
friend class InternalError  [friend]
```

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

- Error.h

9.14 EventCallbackData Struct Reference

Public Attributes

- void ∗ EventUserData

  Pointer to the user-supplied data struct.
- size_t EventUserDataSize

  Size of the user data data supplied to the RegisterEvent() function.
- const char ∗ EventName

  The event name used to register the event.
- long long unsigned EventID

  The device register which EventName maps to.
- long long unsigned EventTimestamp

  Timestamp indicated the time (as reported by the camera) at which the camera exposure operation completed.
- void ∗ EventData

  A pointer to additional data pertaining to the event which just trigger the callback function.
- size_t EventDataSize

  The size of the structure pointed to by EventData.

9.14.1 Member Data Documentation

9.14.1.1 EventData

```
void* EventData
```

A pointer to additional data pertaining to the event which just trigger the callback function.

The data may be of difference sizes or may not even be allocated, depending on the type of event which triggered the callback.

9.14.1.2 EventDataSize

```
size_t EventDataSize
```

The size of the structure pointed to by EventData.

This value should be checked, especially if there are events which can trigger variable- length event data to be returned to the user when the callback function is issued.

9.14.1.3 EventID

```
long long unsigned EventID
```

The device register which EventName maps to.

Provides an alternate means of indexing into different event types.

9.14.1.4 EventName

```
const char* EventName
```

The event name used to register the event.

Provided so the user knows which event triggered the callback.

9.14.1.5 EventTimestamp

```
long long unsigned EventTimestamp
```

Timestamp indicated the time (as reported by the camera) at which the camera exposure operation completed.

This can be compared with image stimestamps if there is a need to map event timestamps to specific images, if applicable.

9.14.1.6 EventUserData

```
void* EventUserData
```

Pointer to the user-supplied data struct.

9.14.1.7 EventUserDataSize

```
size_t EventUserDataSize
```

Size of the user data data supplied to the RegisterEvent() function.

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

- FlyCapture2Defs.h

9.15 EventOptions Struct Reference

Options for enabling device event registration.

Public Attributes

- CameraEventCallback EventCallbackFcn

    Callback function pointer.
- const char ∗ EventName

    Event name to register.
- const void ∗ EventUserData

    Pointer to callback data to be passed to the callback function.
- size_t EventUserDataSize

    Size of the underlying struct passed as eventCallbackData for sanity checks.

9.15.1 Detailed Description

Options for enabling device event registration.

9.15.2 Member Data Documentation

9.15.2.1 EventCallbackFcn

```
CameraEventCallback EventCallbackFcn
```

Callback function pointer.

9.15.2.2 EventName

```
const char* EventName
```

Event name to register.

9.15.2.3 EventUserData

```
const void* EventUserData
```

Pointer to callback data to be passed to the callback function.

9.15.2.4 EventUserDataSize

```
size_t EventUserDataSize
```

Size of the underlying struct passed as eventCallbackData for sanity checks.

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

- FlyCapture2Defs.h

9.16 FC2Config Struct Reference

Configuration for a camera.

Public Member Functions

- FC2Config ()

Public Attributes

- unsigned int numBuffers

  Number of buffers used by the FlyCapture2 library to grab images.
- unsigned int numImageNotifications

  Number of notifications per image.
- unsigned int minNumImageNotifications

  Minimum number of notifications needed for the current image settings on the camera.
- int grabTimeout

  Time in milliseconds that RetrieveBuffer() and WaitForBufferEvent() will wait for an image before timing out and returning.
- GrabMode grabMode

  Grab mode for the camera.
- bool highPerformanceRetrieveBuffer

  This parameter enables RetrieveBuffer to run in high performance mode.
- BusSpeed isochBusSpeed

  Isochronous bus speed.
- BusSpeed asyncBusSpeed

  Asynchronous bus speed.
- BandwidthAllocation bandwidthAllocation

  Bandwidth allocation flag that tells the camera the bandwidth allocation strategy to employ.
- unsigned int registerTimeoutRetries

  Number of retries to perform when a register read/write timeout is received by the library.
- unsigned int registerTimeout

  Register read/write timeout value, in microseconds.
- unsigned int reserved [16]

  Reserved for future use.

9.16.1 Detailed Description

Configuration for a camera.

These options are options that are generally should be set before starting isochronous transfer.

9.16.2 Constructor & Destructor Documentation

9.16.2.1 FC2Config()

```
FC2Config ( )  [inline]
```

9.16.3 Member Data Documentation

9.16.3.1 asyncBusSpeed

```
BusSpeed asyncBusSpeed
```

Asynchronous bus speed.

9.16.3.2 bandwidthAllocation

```
BandwidthAllocation bandwidthAllocation
```

Bandwidth allocation flag that tells the camera the bandwidth allocation strategy to employ.

9.16.3.3 grabMode

```
GrabMode grabMode
```

Grab mode for the camera.

The default is DROP_FRAMES.

9.16.3.4 grabTimeout

```
int grabTimeout
```

Time in milliseconds that RetrieveBuffer() and WaitForBufferEvent() will wait for an image before timing out and returning.

9.16.3.5 highPerformanceRetrieveBuffer

```
bool highPerformanceRetrieveBuffer
```

This parameter enables RetrieveBuffer to run in high performance mode.

This means that any interaction with the camera, other then grabbing the image is disabled. Currently Retrieve buffer reads registers on the camera to determine which embedded image information settings have been enabled, and it reads what the bayer tile is currently set to. When High Performance mode is on, these reads are disabled. This means that any changes to the Bayer Tile or to the Embedded image info after StartCapture() will not be tracked when made using direct register writes. If the corresponding SetEmbededImageInfo() and GetEmbededImageInfo() calls are used then the changes will be appropriately reflected. This also means that changes to embedded image info from other processes will not be updated either.

9.16.3.6 isochBusSpeed

```
BusSpeed isochBusSpeed
```

Isochronous bus speed.

9.16.3.7 minNumImageNotifications

```
unsigned int minNumImageNotifications
```

Minimum number of notifications needed for the current image settings on the camera.

Read-only value.

9.16.3.8 numBuffers

```
unsigned int numBuffers
```

Number of buffers used by the FlyCapture2 library to grab images.

9.16.3.9 numImageNotifications

```
unsigned int numImageNotifications
```

Number of notifications per image.

This value should only be set after the image settings to be used is set to the camera. The default number of notifications is 1.

There are 4 general scenarios:

- 1 notification - End of image
- 2 notifications - After first packet and end of image
- 3 notifications - After first packet, middle of image, end of image
- x notifications - After first packet, (x -2) spread evenly, end of image

Specifying zero for the number of notifications will be ignored (the current value will not be modified).

Note that the event numbers start at 0. Ex. when 3 notifications are used, the three events will be 0, 1 and 2.

9.16.3.10 registerTimeout

```
unsigned int registerTimeout
```

Register read/write timeout value, in microseconds.

The default value is dependent on the interface type.

9.16.3.11 registerTimeoutRetries

```
unsigned int registerTimeoutRetries
```

Number of retries to perform when a register read/write timeout is received by the library.

The default value is 0.

9.16.3.12 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.17 FC2Version Struct Reference

The current version of the library.

Public Attributes

- unsigned int major

  Major version number.
- unsigned int minor

  Minor version number.
- unsigned int type

  Type version number.
- unsigned int build

  Build version number.

9.17.1 Detailed Description

The current version of the library.

9.17.2 Member Data Documentation

9.17.2.1 build

```
unsigned int build
```

Build version number.

9.17.2.2 major

```
unsigned int major
```

Major version number.

9.17.2.3 minor

```
unsigned int minor
```

Minor version number.

9.17.2.4 type

```
unsigned int type
```

Type version number.

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

- FlyCapture2Defs.h

9.18 FlyCapture2Video Class Reference

The FlyCapture2Video class provides the functionality for the user to record images to an AVI file.

Public Member Functions

- FlyCapture2Video ()

    Default constructor.
- virtual ∼FlyCapture2Video ()

    Default destructor.
- virtual Error Open (const char ∗pFileName, AVIOption ∗pOption)

    Open an AVI file in preparation for writing Images to disk.
- virtual Error Open (const char ∗pFileName, MJPGOption ∗pOption)

    Open an MJPEG AVI file in preparation for writing Images to disk.
- virtual Error Open (const char ∗pFileName, H264Option ∗pOption)

    Open an H.264 video file in preparation for writing Images to disk.
- virtual Error Append (Image ∗pImage)

    Append an image to the AVI/MP4 file.
- virtual Error Close ()

    Close the AVI/MP4 file.
- virtual void SetMaximumFileSize (unsigned int size)

    Set the maximum file size (in megabytes) of a AVI/MP4 file.

9.18.1 Detailed Description

The FlyCapture2Video class provides the functionality for the user to record images to an AVI file.

9.18.2 Constructor & Destructor Documentation

9.18.2.1 FlyCapture2Video()

```
FlyCapture2Video ( )
```

Default constructor.

9.18.2.2 ∼FlyCapture2Video()

```
virtual ∼FlyCapture2Video ( )  [virtual]
```

Default destructor.

9.18.3 Member Function Documentation

9.18.3.1 Append()

```
virtual Error Append (
            Image ∗ pImage )  [virtual]
```

Append an image to the AVI/MP4 file.

Parameters

pImage	The image to append.

Returns

An Error indicating the success or failure of the function.

9.18.3.2 Close()

```
virtual Error Close ( )  [virtual]
```

Close the AVI/MP4 file.

See also

Open()

Returns

An Error indicating the success or failure of the function.

9.18.3.3 Open() [1/3]

```
virtual Error Open (
             const char * pFileName,
             AVIOption * pOption )  [virtual]
```

Open an AVI file in preparation for writing Images to disk.

The size of AVI files is limited to 2GB. The filenames are automatically generated using the filename specified.

Parameters

pFileName	The filename of the AVI file.
pOption	Options to apply to the AVI file.

See also

SetMaximumFileSize()
Close()

Returns

An Error indicating the success or failure of the function.

9.18.3.4 Open() [2/3]

```
virtual Error Open (
            const char * pFileName,
            MJPGOption * pOption )  [virtual]
```

Open an MJPEG AVI file in preparation for writing Images to disk.

The size of AVI files is limited to 2GB. The filenames are automatically generated using the filename specified.

Parameters

pFileName	The filename of the AVI file.
pOption	MJPEG options to apply to the AVI file.

See also

SetMaximumFileSize()
Close()
MJPGOption

Returns

An Error indicating the success or failure of the function.

9.18.3.5 Open() [3/3]

```
virtual Error Open (
            const char * pFileName,
            H264Option * pOption )  [virtual]
```

Open an H.264 video file in preparation for writing Images to disk.

If the file extension is not specified, MP4 will be used as the default container. Consult ffmpeg documentation for a list of supported containers.

Parameters

pFileName	The filename of the video file.
pOption	H.264 options to apply to the video file.

See also

Close()
H264Option

Returns

An Error indicating the success or failure of the function.

9.18.3.6 SetMaximumFileSize()

```
virtual void SetMaximumFileSize (
            unsigned int size )  [virtual]
```

Set the maximum file size (in megabytes) of a AVI/MP4 file.

A new AVI/MP4 file is created automatically when file size limit is reached. Setting a maximum size of 0 indicates no limit on file size.

Parameters

size	The maximum AVI file size in MB.

See also

Append()

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

- FlyCapture2Video.h

9.19 FlyCapture3ApiGuiWrapper Class Reference

Public Member Functions

- WRAPPER_API FlyCapture3ApiGuiWrapper (void)
- WRAPPER_API ∼FlyCapture3ApiGuiWrapper (void)
- WRAPPER_API void ConnectGUILibrary (FlyCapture2::GCCamera &camera)
- WRAPPER_API void DisconnectGUILibrary ()
- WRAPPER_API void ShowPropertyGridDialog ()
- WRAPPER_API void ShowCameraSelectionDialog ()
- WRAPPER_API int GetNumDialogs ()
- WRAPPER_API std::list< std::string > GetDialogNameList ()
- WRAPPER_API void ShowDialogByName (std::string dialogName)
- WRAPPER_API void ShowDialogByIndex (int index)
- WRAPPER_API int GetNumOfControls ()
- WRAPPER_API std::list< std::string > GetControlNameList ()

9.19.1 Constructor & Destructor Documentation

9.19.1.1 FlyCapture3ApiGuiWrapper()

```
WRAPPER_API FlyCapture3ApiGuiWrapper (
             void  )
```

9.19.1.2 ∼FlyCapture3ApiGuiWrapper()

```
WRAPPER_API ∼FlyCapture3ApiGuiWrapper (
             void  )
```

9.19.2 Member Function Documentation

9.19.2.1 ConnectGUILibrary()

```
WRAPPER_API void ConnectGUILibrary (
             FlyCapture2::GCCamera & camera )
```

9.19.2.2 DisconnectGUILibrary()

```
WRAPPER_API void DisconnectGUILibrary ( )
```

9.19.2.3 GetControlNameList()

```
WRAPPER_API std::list<std::string> GetControlNameList ( )
```

9.19.2.4 GetDialogNameList()

```
WRAPPER_API std::list<std::string> GetDialogNameList ( )
```

9.19.2.5 GetNumDialogs()

```
WRAPPER_API int GetNumDialogs ( )
```

9.19.2.6 GetNumOfControls()

```
WRAPPER_API int GetNumOfControls ( )
```

9.19.2.7 ShowCameraSelectionDialog()

```
WRAPPER_API void ShowCameraSelectionDialog ( )
```

9.19.2.8 ShowDialogByIndex()

```
WRAPPER_API void ShowDialogByIndex (
             int index )
```

9.19.2.9 ShowDialogByName()

```
WRAPPER_API void ShowDialogByName (
             std::string dialogName )
```

9.19.2.10 ShowPropertyGridDialog()

```
WRAPPER_API void ShowPropertyGridDialog ( )
```

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

- FlyCapture3ApiGuiWrapper.h

9.20 Format7ImageSettings Struct Reference

Format 7 image settings.

Public Member Functions

- Format7ImageSettings ()

Public Attributes

- Mode mode

  Format 7 mode.
- unsigned int offsetX

  Horizontal image offset.
- unsigned int offsetY

  Vertical image offset.
- unsigned int width

  Width of image.
- unsigned int height

  Height of image.
- PixelFormat pixelFormat

  Pixel format of image.
- unsigned int reserved [8]

  Reserved for future use.

9.20.1 Detailed Description

Format 7 image settings.

9.20.2 Constructor & Destructor Documentation

9.20.2.1 Format7ImageSettings()

```
Format7ImageSettings ( )  [inline]
```

9.20.3 Member Data Documentation

9.20.3.1 height

```
unsigned int height
```

Height of image.

9.20.3.2 mode

```
Mode mode
```

Format 7 mode.

9.20.3.3 offsetX

```
unsigned int offsetX
```

Horizontal image offset.

9.20.3.4 offsetY

```
unsigned int offsetY
```

Vertical image offset.

9.20.3.5 pixelFormat

```
PixelFormat pixelFormat
```

Pixel format of image.

9.20.3.6 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.20.3.7 width

```
unsigned int width
```

Width of image.

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

- FlyCapture2Defs.h

9.21 Format7Info Struct Reference

Format 7 information for a single mode.

Public Member Functions

- Format7Info ()

Public Attributes

- Mode mode

  Format 7 mode.
- unsigned int maxWidth

  Maximum image width.
- unsigned int maxHeight

  Maximum image height.
- unsigned int offsetHStepSize

  Horizontal step size for the offset.
- unsigned int offsetVStepSize

  Vertical step size for the offset.
- unsigned int imageHStepSize

  Horizontal step size for the image.
- unsigned int imageVStepSize

  Vertical step size for the image.
- unsigned int pixelFormatBitField

  Supported pixel formats in a bit field.
- unsigned int vendorPixelFormatBitField

  Vendor unique pixel formats in a bit field.
- unsigned int packetSize

  Current packet size in bytes.
- unsigned int minPacketSize

  Minimum packet size in bytes for current mode.
- unsigned int maxPacketSize

  Maximum packet size in bytes for current mode.
- float percentage

  Current packet size as a percentage of maximum packet size.
- unsigned int reserved [16]

  Reserved for future use.

9.21.1 Detailed Description

Format 7 information for a single mode.

9.21.2 Constructor & Destructor Documentation

9.21.2.1 Format7Info()

```
Format7Info ( )  [inline]
```

9.21.3 Member Data Documentation

9.21.3.1 imageHStepSize

```
unsigned int imageHStepSize
```

Horizontal step size for the image.

9.21.3.2 imageVStepSize

```
unsigned int imageVStepSize
```

Vertical step size for the image.

9.21.3.3 maxHeight

```
unsigned int maxHeight
```

Maximum image height.

9.21.3.4 maxPacketSize

```
unsigned int maxPacketSize
```

Maximum packet size in bytes for current mode.

9.21.3.5 maxWidth

```
unsigned int maxWidth
```

Maximum image width.

9.21.3.6 minPacketSize

```
unsigned int minPacketSize
```

Minimum packet size in bytes for current mode.

9.21.3.7 mode

```
Mode mode
```

Format 7 mode.

9.21.3.8 offsetHStepSize

```
unsigned int offsetHStepSize
```

Horizontal step size for the offset.

9.21.3.9 offsetVStepSize

```
unsigned int offsetVStepSize
```

Vertical step size for the offset.

9.21.3.10 packetSize

```
unsigned int packetSize
```

Current packet size in bytes.

9.21.3.11 percentage

```
float percentage
```

Current packet size as a percentage of maximum packet size.

9.21.3.12 pixelFormatBitField

```
unsigned int pixelFormatBitField
```

Supported pixel formats in a bit field.

9.21.3.13 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

9.21.3.14 vendorPixelFormatBitField

```
unsigned int vendorPixelFormatBitField
```

Vendor unique pixel formats in a bit field.

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

- FlyCapture2Defs.h

9.22 Format7PacketInfo Struct Reference

Format 7 packet information.

Public Member Functions

- Format7PacketInfo ()

Public Attributes

- unsigned int recommendedBytesPerPacket

  Recommended bytes per packet.
- unsigned int maxBytesPerPacket

  Maximum bytes per packet.
- unsigned int unitBytesPerPacket

  Minimum bytes per packet.
- unsigned int reserved [8]

  Reserved for future use.

9.22.1 Detailed Description

Format 7 packet information.

9.22.2 Constructor & Destructor Documentation

9.22.2.1 Format7PacketInfo()

```
Format7PacketInfo ( )  [inline]
```

9.22.3 Member Data Documentation

9.22.3.1 maxBytesPerPacket

```
unsigned int maxBytesPerPacket
```

Maximum bytes per packet.

9.22.3.2 recommendedBytesPerPacket

```
unsigned int recommendedBytesPerPacket
```

Recommended bytes per packet.

9.22.3.3 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.22.3.4 unitBytesPerPacket

```
unsigned int unitBytesPerPacket
```

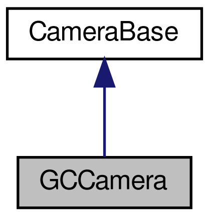
Minimum bytes per packet.

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

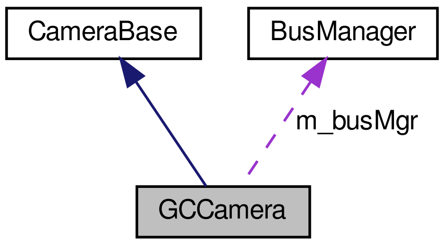
- FlyCapture2Defs.h

9.23 GCCamera Class Reference

Inheritance diagram for GCCamera:



Collaboration diagram for GCCamera:



Public Member Functions

- GCCamera (void)
- virtual ∼GCCamera (void)
- ::GenApi::INodeMap ∗ GetNodeMap ()
- Error SetCamera (CameraBase ∗camera)
- Error SetCamera (CameraBase ∗camera, const char ∗filepath=NULL)
- std::string GCCamera::GetXML ()
- virtual Error WriteGVCPRegister (unsigned int address, unsigned int value, bool broadcast=false)
- virtual Error ReadGVCPRegister (unsigned int address, unsigned int ∗pValue)
- virtual Error WriteGVCPRegisterBlock (unsigned int address, const unsigned int ∗pBuffer, unsigned int length)
- virtual Error ReadGVCPRegisterBlock (unsigned int address, unsigned int ∗pBuffer, unsigned int length)
- virtual Error WriteGVCPMemory (unsigned int address, const unsigned char ∗pBuffer, unsigned int length)
- virtual Error ReadGVCPMemory (unsigned int address, unsigned char ∗pBuffer, unsigned int length)
- virtual Error Connect (PGRGuid ∗pGuid=NULL)

  The following functions are inherited from CameraBase.
- Error Connect (PGRGuid ∗pGuid=NULL, const char ∗filepath=NULL)

- virtual Error Disconnect ()

  Disconnects the camera object from the camera.
- virtual bool IsConnected ()

  Checks if the camera object is connected to a physical camera specified by a GUID.
- virtual Error SetCallback (ImageEventCallback callbackFn, const void ∗pCallbackData=NULL)

  Sets the callback data to be used on completion of image transfer.
- virtual Error StartCapture (ImageEventCallback callbackFn=NULL, const void ∗pCallbackData=NULL)

  Starts isochronous image capture.
- virtual Error RetrieveBuffer (Image ∗pImage)

  Retrieves the the next image object containing the next image.
- virtual Error StopCapture ()

  Stops isochronous image transfer and cleans up all associated resources.
- virtual Error WaitForBufferEvent (Image ∗pImage, unsigned int eventNumber)

  Retrieves the next image event containing the next part of the image.
- virtual Error SetUserBuffers (unsigned char ∗const pMemBuffers, int size, int numBuffers)

  Specify user allocated buffers to use as image data buffers.
- virtual Error GetConfiguration (FC2Config ∗pConfig)

  Get the configuration associated with the camera object.
- virtual Error SetConfiguration (const FC2Config ∗pConfig)

  Set the configuration associated with the camera object.
- virtual Error GetCameraInfo (CameraInfo ∗pCameraInfo)

  Retrieves information from the camera such as serial number, model name and other camera information.
- virtual Error GetPropertyInfo (PropertyInfo ∗pPropInfo)

  Retrieves information about the specified camera property.
- virtual Error GetProperty (Property ∗pProp)

  Reads the settings for the specified property from the camera.
- virtual Error SetProperty (const Property ∗pProp, bool broadcast=false)

  Writes the settings for the specified property to the camera.
- virtual Error GetGPIOPinDirection (unsigned int pin, unsigned int ∗pDirection)

  Get the GPIO pin direction for the specified pin.
- virtual Error SetGPIOPinDirection (unsigned int pin, unsigned int direction, bool broadcast=false)

  Set the GPIO pin direction for the specified pin.
- virtual Error GetTriggerModeInfo (TriggerModeInfo ∗pTriggerModeInfo)

  Retrieve trigger information from the camera.
- virtual Error GetTriggerMode (TriggerMode ∗pTriggerMode)

  Retrieve current trigger settings from the camera.
- virtual Error SetTriggerMode (const TriggerMode ∗pTriggerMode, bool broadcast=false)

  Set the specified trigger settings to the camera.
- virtual Error FireSoftwareTrigger (bool broadcast=false)

  Fire the software trigger according to the DCAM specifications.
- virtual Error GetTriggerDelayInfo (TriggerDelayInfo ∗pTriggerDelayInfo)

  Retrieve trigger delay information from the camera.
- virtual Error GetTriggerDelay (TriggerDelay ∗pTriggerDelay)

  Retrieve current trigger delay settings from the camera.
- virtual Error SetTriggerDelay (const TriggerDelay ∗pTriggerDelay, bool broadcast=false)

  Set the specified trigger delay settings to the camera.
- virtual Error GetStrobeInfo (StrobeInfo ∗pStrobeInfo)

  Retrieve strobe information from the camera.
- virtual Error GetStrobe (StrobeControl ∗pStrobeControl)

  Retrieve current strobe settings from the camera.
- virtual Error SetStrobe (const StrobeControl ∗pStrobeControl, bool broadcast=false)

Set current strobe settings to the camera.
- virtual Error GetLUTInfo (LUTData ∗pData)

  Query if LUT support is available on the camera.
- virtual Error GetLUTBankInfo (unsigned int bank, bool ∗pReadSupported, bool ∗pWriteSupported)

  Query the read/write status of a single LUT bank.
- virtual Error GetActiveLUTBank (unsigned int ∗pActiveBank)

  Get the LUT bank that is currently being used.
- virtual Error SetActiveLUTBank (unsigned int activeBank)

  Set the LUT bank that will be used.
- virtual Error EnableLUT (bool on)

  Enable or disable LUT functionality on the camera.
- virtual Error GetLUTChannel (unsigned int bank, unsigned int channel, unsigned int sizeEntries, unsigned int ∗pEntries)

  Get the LUT channel settings from the camera.
- virtual Error SetLUTChannel (unsigned int bank, unsigned int channel, unsigned int sizeEntries, const unsigned int ∗pEntries)

  Set the LUT channel settings to the camera.
- virtual Error GetMemoryChannel (unsigned int ∗pCurrentChannel)

  Retrieve the current memory channel from the camera.
- virtual Error SaveToMemoryChannel (unsigned int channel)

  Save the current settings to the specfied current memory channel.
- virtual Error RestoreFromMemoryChannel (unsigned int channel)

  Restore the specfied current memory channel.
- virtual Error GetMemoryChannelInfo (unsigned int ∗pNumChannels)

  Query the camera for memory channel support.
- virtual Error GetEmbeddedImageInfo (EmbeddedImageInfo ∗pInfo)

  Get the current status of the embedded image information register, as well as the availability of each embedded property.
- virtual Error SetEmbeddedImageInfo (EmbeddedImageInfo ∗pInfo)

  Sets the on/off values of the embedded image information structure to the camera.
- virtual Error WriteRegister (unsigned int address, unsigned int value, bool broadcast=false)

  Write to the specified register on the camera.
- virtual Error ReadRegister (unsigned int address, unsigned int ∗pValue)

  Read the specified register from the camera.
- virtual Error WriteRegisterBlock (unsigned short addressHigh, unsigned int addressLow, const unsigned int ∗pBuffer, unsigned int length)

  Write to the specified register block on the camera.
- virtual Error ReadRegisterBlock (unsigned short addressHigh, unsigned int addressLow, unsigned int ∗p←Buffer, unsigned int length)

  Read from the specified register block on the camera.
- Error GetCycleTime (TimeStamp ∗timeStamp)

  Returns a Timestamp struct containing 1394 CYCLE_TIME information.
- InterfaceType GetInterfaceType ()
- virtual Error GetStats (CameraStats ∗pStats)
- virtual Error ResetStats ()

Static Public Member Functions

- static Error StartSyncCapture (unsigned int numCameras, const GigECamera ∗∗ppCameras, const Image←EventCallback ∗pCallbackFns=NULL, const void ∗∗pCallbackDataArray=NULL)
- static const char ∗ GetRegisterString (unsigned int registerVal)

Protected Member Functions

- void TestGainNode ()

Protected Attributes

- BusManager m_busMgr

9.23.1 Constructor & Destructor Documentation

9.23.1.1 GCCamera()

```
GCCamera (
            void )
```

9.23.1.2 ∼GCCamera()

```
virtual ∼GCCamera (
            void ) [virtual]
```

9.23.2 Member Function Documentation

9.23.2.1 Connect() [1/2]

```
virtual Error Connect (
            PGRGuid * pGuid = NULL ) [virtual]
```

The following functions are inherited from CameraBase.

See CameraBase.h for further information.

Implements CameraBase.

9.23.2.2 Connect() [2/2]

```
Error Connect (
            PGRGuid * pGuid = NULL,
            const char * filepath = NULL )
```

9.23.2.3 Disconnect()

```
virtual Error Disconnect ( )  [virtual]
```

Disconnects the camera object from the camera.

This allows another physical camera specified by a GUID to be connected to the camera object.

See also

Connect()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.4 EnableLUT()

```
virtual Error EnableLUT (
             bool on )  [virtual]
```

Enable or disable LUT functionality on the camera.

Parameters

on	Whether to enable or disable LUT.

See also

GetLUTInfo()
GetLUTChannel()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.5 FireSoftwareTrigger()

```
virtual Error FireSoftwareTrigger (
             bool broadcast = false )  [virtual]
```

Fire the software trigger according to the DCAM specifications.

Parameters

broadcast	Whether the action should be broadcast.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.6 GCCamera::GetXML()

```
std::string GCCamera::GetXML ( )
```

9.23.2.7 GetActiveLUTBank()

```
virtual Error GetActiveLUTBank (
              unsigned int * pActiveBank )   [virtual]
```

Get the LUT bank that is currently being used.

For cameras with PGR LUT, the active bank is always 0.

Parameters

pActiveBank	The currently active bank.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.8 GetCameraInfo()

```
virtual Error GetCameraInfo (
              CameraInfo * pCameraInfo )   [virtual]
```

Retrieves information from the camera such as serial number, model name and other camera information.

Parameters

pCameraInfo	Pointer to the camera information structure to be filled.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.9 GetConfiguration()

```
virtual Error GetConfiguration (
            FC2Config * pConfig )  [virtual]
```

Get the configuration associated with the camera object.

Parameters

pConfig	Pointer to the configuration structure to be filled.

See also

SetConfiguration()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.10 GetCycleTime()

```
Error GetCycleTime (
            TimeStamp * timeStamp )  [virtual]
```

Returns a Timestamp struct containing 1394 CYCLE_TIME information.

Parameters

registerVal	The register value to query.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.11 GetEmbeddedImageInfo()

```
virtual Error GetEmbeddedImageInfo (
            EmbeddedImageInfo * pInfo )  [virtual]
```

Get the current status of the embedded image information register, as well as the availability of each embedded property.

Parameters

pInfo	Structure to be filled.

See also

SetEmbeddedImageInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.12 GetGPIOPinDirection()

```
virtual Error GetGPIOPinDirection (
            unsigned int pin,
            unsigned int * pDirection )  [virtual]
```

Get the GPIO pin direction for the specified pin.

This is not a required call when using the trigger or strobe functions as the pin direction is set automatically internally.

Parameters

pin	Pin to get the direction for.
pDirection	Direction of the pin. 0 for input, 1 for output.

See also

SetGPIOPinDirection()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.13 GetInterfaceType()

```
InterfaceType GetInterfaceType ( )
```

9.23.2.14 GetLUTBankInfo()

```
virtual Error GetLUTBankInfo (
            unsigned int bank,
            bool * pReadSupported,
            bool * pWriteSupported )  [virtual]
```

Query the read/write status of a single LUT bank.

Parameters

bank	The bank to query.
pReadSupported	Whether reading from the bank is supported.
pWriteSupported	Whether writing to the bank is supported.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.15 GetLUTChannel()

```
virtual Error GetLUTChannel (
            unsigned int bank,
            unsigned int channel,
            unsigned int sizeEntries,
            unsigned int * pEntries )  [virtual]
```

Get the LUT channel settings from the camera.

Parameters

bank	Bank to retrieve.
channel	Channel to retrieve.
sizeEntries	Number of entries in LUT table to read.
pEntries	Array to store LUT entries.

See also

GetLUTInfo()
EnableLUT()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.16 GetLUTInfo()

```
virtual Error GetLUTInfo (
            LUTData * pData )  [virtual]
```

Query if LUT support is available on the camera.

Note that some cameras may report support for the LUT and return an inputBitDepth of 0. In these cases use log2(numEntries) for the inputBitDepth.

Parameters

pData	The LUT structure to be filled.

See also

EnableLUT()
GetLUTChannel()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.17 GetMemoryChannel()

```
virtual Error GetMemoryChannel (
            unsigned int * pCurrentChannel )  [virtual]
```

Retrieve the current memory channel from the camera.

Parameters

pCurrentChannel	Current memory channel.

See also

SaveToMemoryChannel()
RestoreFromMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.18 GetMemoryChannelInfo()

```
virtual Error GetMemoryChannelInfo (
            unsigned int * pNumChannels )  [virtual]
```

Query the camera for memory channel support.

If the number of channels is 0, then memory channel support is not available.

Parameters

pNumChannels	Number of memory channels supported.

See also

GetMemoryChannel()
SaveToMemoryChannel()
RestoreFromMemoryChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.19 GetNodeMap()

```
::GenApi::INodeMap* GetNodeMap ( )
```

9.23.2.20 GetProperty()

```
virtual Error GetProperty (
            Property * pProp )  [virtual]
```

Reads the settings for the specified property from the camera.

The property type must be specified in the Property structure passed into the function in order for the function to succeed. If auto is on, the integer and abs values returned may not be consistent with each other.

Parameters

pProp	Pointer to the Property structure to be filled.

See also

GetPropertyInfo()
SetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.21 GetPropertyInfo()

```
virtual Error GetPropertyInfo (
            PropertyInfo * pPropInfo )  [virtual]
```

Retrieves information about the specified camera property.

The property type must be specified in the PropertyInfo structure passed into the function in order for the function to succeed.

Parameters

pPropInfo	Pointer to the PropertyInfo structure to be filled.

See also

GetProperty()
SetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.22 GetRegisterString()

```
static const char* GetRegisterString (
             unsigned int registerVal )  [static]
```

9.23.2.23 GetStats()

```
virtual Error GetStats (
             CameraStats * pStats )  [virtual]
```

Implements CameraBase.

9.23.2.24 GetStrobe()

```
virtual Error GetStrobe (
             StrobeControl * pStrobeControl )  [virtual]
```

Retrieve current strobe settings from the camera.

The strobe pin must be specified in the structure before being passed in to the function.

Parameters

pStrobeControl	Structure to receive strobe settings.

See also

GetStrobeInfo()
SetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.25 GetStrobeInfo()

```
virtual Error GetStrobeInfo (
            StrobeInfo * pStrobeInfo )  [virtual]
```

Retrieve strobe information from the camera.

Parameters

pStrobeInfo	Structure to receive strobe information.

See also

GetStrobe()
SetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.26 GetTriggerDelay()

```
virtual Error GetTriggerDelay (
            TriggerDelay * pTriggerDelay )  [virtual]
```

Retrieve current trigger delay settings from the camera.

Parameters

pTriggerDelay	Structure to receive trigger delay settings.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.27 GetTriggerDelayInfo()

```
virtual Error GetTriggerDelayInfo (
            TriggerDelayInfo * pTriggerDelayInfo )  [virtual]
```

Retrieve trigger delay information from the camera.

Parameters

pTriggerDelayInfo	Structure to receive trigger delay information.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.28 GetTriggerMode()

```
virtual Error GetTriggerMode (
            TriggerMode * pTriggerMode )  [virtual]
```

Retrieve current trigger settings from the camera.

Parameters

pTriggerMode	Structure to receive trigger mode settings.

See also

GetTriggerModeInfo()
SetTriggerMode()

GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.29 GetTriggerModeInfo()

```
virtual Error GetTriggerModeInfo (
            TriggerModeInfo * pTriggerModeInfo )  [virtual]
```

Retrieve trigger information from the camera.

Parameters

pTriggerModeInfo	Structure to receive trigger information.

See also

GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.30 IsConnected()

```
virtual bool IsConnected ( )  [virtual]
```

Checks if the camera object is connected to a physical camera specified by a GUID.

See also

Connect()
Disconnect()

Returns

Whether Connect() was called on the camera object.

Implements CameraBase.

9.23.2.31 ReadGVCPMemory()

```
virtual Error ReadGVCPMemory (
            unsigned int address,
            unsigned char * pBuffer,
            unsigned int length )  [virtual]
```

9.23.2.32 ReadGVCPRegister()

```
virtual Error ReadGVCPRegister (
            unsigned int address,
            unsigned int * pValue )  [virtual]
```

9.23.2.33 ReadGVCPRegisterBlock()

```
virtual Error ReadGVCPRegisterBlock (
            unsigned int address,
            unsigned int * pBuffer,
            unsigned int length )  [virtual]
```

9.23.2.34 ReadRegister()

```
virtual Error ReadRegister (
            unsigned int address,
            unsigned int * pValue )  [virtual]
```

Read the specified register from the camera.

Parameters

address	DCAM address to be read from.
pValue	The value that is read.

See also

WriteRegister()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.35 ReadRegisterBlock()

```
virtual Error ReadRegisterBlock (
            unsigned short addressHigh,
            unsigned int addressLow,
            unsigned int * pBuffer,
            unsigned int length )  [virtual]
```

Read from the specified register block on the camera.

Parameters

addressHigh	Top 16 bits of the 48 bit absolute address to read from.
addressLow	Bottom 32 bits of the 48 bits absolute address to read from.
pBuffer	Array to store read data.
length	Size of array, in quadlets.

See also

WriteRegisterBlock()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.36 ResetStats()

```
virtual Error ResetStats ( )  [virtual]
```

Implements CameraBase.

9.23.2.37 RestoreFromMemoryChannel()

```
virtual Error RestoreFromMemoryChannel (
            unsigned int channel )  [virtual]
```

Restore the specfied current memory channel.

Parameters

channel	Memory channel to restore from.

See also

GetMemoryChannel()
SaveToMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.38 RetrieveBuffer()

```
virtual Error RetrieveBuffer (
             Image * pImage )  [virtual]
```

Retrieves the the next image object containing the next image.

If the grab mode has not been set, or has been set to DROP_FRAMES the default behavior is to requeue images for DMA if they have not been retrieved by the time the next image transfer completes. If BUFFER_FRAMES is specified, the next image in the sequence will be retrieved. Note that for the BUFFER_FRAMES case, if retrieval does not keep up with the DMA process, images will be lost. The default behavior is to perform DROP_FRAMES image retrieval.

Parameters

pImage	Pointer to Image object to store image data.

See also

StartCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.39 SaveToMemoryChannel()

```
virtual Error SaveToMemoryChannel (
             unsigned int channel )  [virtual]
```

Save the current settings to the specfied current memory channel.

Parameters

channel	Memory channel to save to.

See also

GetMemoryChannel()
RestoreFromMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.40 SetActiveLUTBank()

```
virtual Error SetActiveLUTBank (
            unsigned int activeBank )  [virtual]
```

Set the LUT bank that will be used.

Parameters

activeBank	The bank to be set as active.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.41 SetCallback()

```
virtual Error SetCallback (
            ImageEventCallback callbackFn,
            const void * pCallbackData = NULL )  [virtual]
```

Sets the callback data to be used on completion of image transfer.

To clear the current stored callback data, pass in NULL for both arguments.

Parameters

callbackFn	A function to be called when a new image is received.
pCallbackData	A pointer to data that can be passed to the callback function.

See also

StartCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.42 SetCamera() [1/2]

```
Error SetCamera (
            CameraBase * camera )
```

9.23.2.43 SetCamera() [2/2]

```
Error SetCamera (
            CameraBase * camera,
            const char * filepath = NULL )
```

9.23.2.44 SetConfiguration()

```
virtual Error SetConfiguration (
            const FC2Config * pConfig ) [virtual]
```

Set the configuration associated with the camera object.

Parameters

pConfig	Pointer to the configuration structure to be used.

See also

GetConfiguration()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.45 SetEmbeddedImageInfo()

```
virtual Error SetEmbeddedImageInfo (
             EmbeddedImageInfo * pInfo )  [virtual]
```

Sets the on/off values of the embedded image information structure to the camera.

Parameters

pInfo	Structure to be used.

See also

GetEmbeddedImageInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.46 SetGPIOPinDirection()

```
virtual Error SetGPIOPinDirection (
             unsigned int pin,
             unsigned int direction,
             bool broadcast = false )  [virtual]
```

Set the GPIO pin direction for the specified pin.

This is useful if there is a need to set the pin into an input pin (i.e. to read the voltage) off the pin without setting it as a trigger source. This is not a required call when using the trigger or strobe functions as the pin direction is set automatically internally.

Parameters

pin	Pin to get the direction for.
direction	Direction of the pin. 0 for input, 1 for output.
broadcast	Whether the action should be broadcast.

See also

GetGPIOPinDirection()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.47 SetLUTChannel()

```
virtual Error SetLUTChannel (
            unsigned int bank,
            unsigned int channel,
            unsigned int sizeEntries,
            const unsigned int * pEntries )  [virtual]
```

Set the LUT channel settings to the camera.

Parameters

bank	Bank to set.
channel	Channel to set.
sizeEntries	Number of entries in LUT table to write. This must be the same size as numEntries returned by GetLutInfo().
pEntries	Array containing LUT entries to write.

See also

GetLUTInfo()
EnableLUT()
GetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.48 SetProperty()

```
virtual Error SetProperty (
            const Property * pProp,
            bool broadcast = false )  [virtual]
```

Writes the settings for the specified property to the camera.

The property type must be specified in the Property structure passed into the function in order for the function to succeed. The absControl flag controls whether the absolute or integer value is written to the camera. Use GetPropertyInfo() to query which options are available for a specific property.

Parameters

pProp	Pointer to the Property structure to be used.
broadcast	Whether the action should be broadcast.

See also

GetPropertyInfo()
GetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.49 SetStrobe()

```
virtual Error SetStrobe (
             const StrobeControl * pStrobeControl,
             bool broadcast = false )  [virtual]
```

Set current strobe settings to the camera.

The strobe pin must be specified in the structure before being passed in to the function.

Parameters

pStrobeControl	Structure providing strobe settings.
broadcast	Whether the action should be broadcast.

See also

GetStrobeInfo()
GetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.50 SetTriggerDelay()

```
virtual Error SetTriggerDelay (
             const TriggerDelay * pTriggerDelay,
             bool broadcast = false )  [virtual]
```

Set the specified trigger delay settings to the camera.

Parameters

pTriggerDelay	Structure providing trigger delay settings.
broadcast	Whether the action should be broadcast.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.51 SetTriggerMode()

```
virtual Error SetTriggerMode (
            const TriggerMode * pTriggerMode,
            bool broadcast = false )  [virtual]
```

Set the specified trigger settings to the camera.

Parameters

pTriggerMode	Structure providing trigger mode settings.
broadcast	Whether the action should be broadcast.

See also

GetTriggerModeInfo()
GetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.52 SetUserBuffers()

```
virtual Error SetUserBuffers (
            unsigned char *const pMemBuffers,
            int size,
            int numBuffers )  [virtual]
```

Specify user allocated buffers to use as image data buffers.

To prevent image tearing, the size of each buffer should be equal to ((unsigned int)(bufferSize + packetSize - 1)/packetSize) ∗ packetSize. The total size should be (size ∗ numBuffers) or larger. The packet Size that should be used differs between interfaces: Firewire: Use the Format7 packet size. Usb2: First round to Format7 packet size then round to 512 bytes. Usb3: Use a packet size of 1024 bytes. GigE: No need to do any rounding on GigE

Parameters

pMemBuffers	Pointer to memory buffers to be written to.
size	The size of each buffer (in bytes).
numBuffers	Number of buffers in the array.

See also

StartCapture()
RetrieveBuffer()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.53 StartCapture()

```
virtual Error StartCapture (
            ImageEventCallback callbackFn = NULL,
            const void * pCallbackData = NULL )  [virtual]
```

Starts isochronous image capture.

It will use either the current video mode or the most recently set video mode of the camera. The optional callback function parameter is called on completion of image transfer. When a callback function is specified, the grab mode will determine how images are delivered. If the grab mode has not been set, or has been set to DROP_FRAM↩ES the default behavior is to requeue images for DMA if they have not been delivered by the time the next image transfer completes. If BUFFER_FRAMES is specified, the next image in the sequence will be delivered. Note that for the BUFFER_FRAMES case, if delivery does not keep up with the DMA process, images will be lost. The default behavior is to perform DROP_FRAMES image delivery Alternatively, the callback parameter can be set to NULL and RetrieveBuffer() can be called as a blocking call to get the image data.

Parameters

callbackFn	A function to be called when a new image is received.
pCallbackData	A pointer to data that can be passed to the callback function.

See also

RetrieveBuffer()
StartSyncCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.54 StartSyncCapture()

```
static Error StartSyncCapture (
             unsigned int numCameras,
             const GigECamera ** ppCameras,
             const ImageEventCallback * pCallbackFns = NULL,
             const void ** pCallbackDataArray = NULL )  [static]
```

9.23.2.55 StopCapture()

```
virtual Error StopCapture ( )  [virtual]
```

Stops isochronous image transfer and cleans up all associated resources.

If an image callback function (specified in the StartCapture() call) is currently executing, StopCapture() will not return until after the callback has completed.

See also

StartCapture()
RetrieveBuffer()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.56 TestGainNode()

```
void TestGainNode ( )  [protected]
```

9.23.2.57 WaitForBufferEvent()

```
virtual Error WaitForBufferEvent (
             Image * pImage,
             unsigned int eventNumber )  [virtual]
```

Retrieves the next image event containing the next part of the image.

Parameters

pImage	Pointer to Image object to store image data.
eventNumber	The event number to wait for.

See also

StartCapture()
RetrieveBuffer()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.58 WriteGVCPMemory()

```
virtual Error WriteGVCPMemory (
             unsigned int address,
             const unsigned char * pBuffer,
             unsigned int length )  [virtual]
```

9.23.2.59 WriteGVCPRegister()

```
virtual Error WriteGVCPRegister (
             unsigned int address,
             unsigned int value,
             bool broadcast = false )  [virtual]
```

9.23.2.60 WriteGVCPRegisterBlock()

```
virtual Error WriteGVCPRegisterBlock (
             unsigned int address,
             const unsigned int * pBuffer,
             unsigned int length )  [virtual]
```

9.23.2.61 WriteRegister()

```
virtual Error WriteRegister (
             unsigned int address,
             unsigned int value,
             bool broadcast = false )  [virtual]
```

Write to the specified register on the camera.

Parameters

address	DCAM address to be written to.
value	The value to be written.
broadcast	Whether the action should be broadcast.

See also

ReadRegister()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.2.62 WriteRegisterBlock()

```
virtual Error WriteRegisterBlock (
             unsigned short addressHigh,
             unsigned int addressLow,
             const unsigned int * pBuffer,
             unsigned int length )  [virtual]
```

Write to the specified register block on the camera.

Parameters

addressHigh	Top 16 bits of the 48 bit absolute address to write to.
addressLow	Bottom 32 bits of the 48 bits absolute address to write to.
pBuffer	Array containing data to be written.
length	Size of array, in quadlets.

See also

ReadRegisterBlock()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.23.3 Member Data Documentation

9.23.3.1 m_busMgr

`BusManager m_busMgr [protected]`

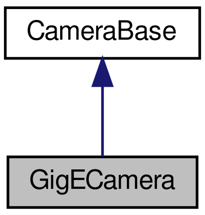
The documentation for this class was generated from the following file:

- GCCamera.h

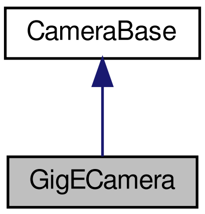
9.24 GigECamera Class Reference

The GigECamera object represents a physical Gigabit Ethernet camera.

Inheritance diagram for GigECamera:



Collaboration diagram for GigECamera:



Public Member Functions

- GigECamera ()

  Default constructor.
- virtual ∼GigECamera ()

  Default destructor.
- virtual Error Connect (PGRGuid ∗pGuid=NULL)

  The following functions are inherited from CameraBase.
- virtual Error Disconnect ()

  Disconnects the camera object from the camera.
- virtual bool IsConnected ()

  Checks if the camera object is connected to a physical camera specified by a GUID.
- virtual Error SetCallback (ImageEventCallback callbackFn, const void ∗pCallbackData=NULL)

  Sets the callback data to be used on completion of image transfer.
- virtual Error StartCapture (ImageEventCallback callbackFn=NULL, const void ∗pCallbackData=NULL)

  Starts isochronous image capture.
- virtual Error RetrieveBuffer (Image ∗pImage)

  Retrieves the the next image object containing the next image.
- virtual Error StopCapture ()

  Stops isochronous image transfer and cleans up all associated resources.
- virtual Error WaitForBufferEvent (Image ∗pImage, unsigned int eventNumber)

  Retrieves the next image event containing the next part of the image.
- virtual Error SetUserBuffers (unsigned char ∗const pMemBuffers, int size, int numBuffers)

  Specify user allocated buffers to use as image data buffers.
- virtual Error GetConfiguration (FC2Config ∗pConfig)

  Get the configuration associated with the camera object.
- virtual Error SetConfiguration (const FC2Config ∗pConfig)

  Set the configuration associated with the camera object.
- virtual Error GetCameraInfo (CameraInfo ∗pCameraInfo)

  Retrieves information from the camera such as serial number, model name and other camera information.
- virtual Error GetPropertyInfo (PropertyInfo ∗pPropInfo)

  Retrieves information about the specified camera property.
- virtual Error GetProperty (Property ∗pProp)

  Reads the settings for the specified property from the camera.
- virtual Error SetProperty (const Property ∗pProp, bool broadcast=false)

  Writes the settings for the specified property to the camera.
- virtual Error GetGPIOPinDirection (unsigned int pin, unsigned int ∗pDirection)

  Get the GPIO pin direction for the specified pin.
- virtual Error SetGPIOPinDirection (unsigned int pin, unsigned int direction, bool broadcast=false)

  Set the GPIO pin direction for the specified pin.
- virtual Error GetTriggerModeInfo (TriggerModeInfo ∗pTriggerModeInfo)

  Retrieve trigger information from the camera.
- virtual Error GetTriggerMode (TriggerMode ∗pTriggerMode)

  Retrieve current trigger settings from the camera.
- virtual Error SetTriggerMode (const TriggerMode ∗pTriggerMode, bool broadcast=false)

  Set the specified trigger settings to the camera.
- virtual Error FireSoftwareTrigger (bool broadcast=false)

  Fire the software trigger according to the DCAM specifications.
- virtual Error GetTriggerDelayInfo (TriggerDelayInfo ∗pTriggerDelayInfo)

  Retrieve trigger delay information from the camera.
- virtual Error GetTriggerDelay (TriggerDelay ∗pTriggerDelay)

Retrieve current trigger delay settings from the camera.
- virtual Error SetTriggerDelay (const TriggerDelay ∗pTriggerDelay, bool broadcast=false)

  Set the specified trigger delay settings to the camera.
- virtual Error GetStrobeInfo (StrobeInfo ∗pStrobeInfo)

  Retrieve strobe information from the camera.
- virtual Error GetStrobe (StrobeControl ∗pStrobeControl)

  Retrieve current strobe settings from the camera.
- virtual Error SetStrobe (const StrobeControl ∗pStrobeControl, bool broadcast=false)

  Set current strobe settings to the camera.
- virtual Error GetLUTInfo (LUTData ∗pData)

  Query if LUT support is available on the camera.
- virtual Error GetLUTBankInfo (unsigned int bank, bool ∗pReadSupported, bool ∗pWriteSupported)

  Query the read/write status of a single LUT bank.
- virtual Error GetActiveLUTBank (unsigned int ∗pActiveBank)

  Get the LUT bank that is currently being used.
- virtual Error SetActiveLUTBank (unsigned int activeBank)

  Set the LUT bank that will be used.
- virtual Error EnableLUT (bool on)

  Enable or disable LUT functionality on the camera.
- virtual Error GetLUTChannel (unsigned int bank, unsigned int channel, unsigned int sizeEntries, unsigned int ∗pEntries)

  Get the LUT channel settings from the camera.
- virtual Error SetLUTChannel (unsigned int bank, unsigned int channel, unsigned int sizeEntries, const unsigned int ∗pEntries)

  Set the LUT channel settings to the camera.
- virtual Error GetMemoryChannel (unsigned int ∗pCurrentChannel)

  Retrieve the current memory channel from the camera.
- virtual Error SaveToMemoryChannel (unsigned int channel)

  Save the current settings to the specfied current memory channel.
- virtual Error RestoreFromMemoryChannel (unsigned int channel)

  Restore the specfied current memory channel.
- virtual Error GetMemoryChannelInfo (unsigned int ∗pNumChannels)

  Query the camera for memory channel support.
- virtual Error GetEmbeddedImageInfo (EmbeddedImageInfo ∗pInfo)

  Get the current status of the embedded image information register, as well as the availability of each embedded property.
- virtual Error SetEmbeddedImageInfo (EmbeddedImageInfo ∗pInfo)

  Sets the on/off values of the embedded image information structure to the camera.
- virtual Error WriteRegister (unsigned int address, unsigned int value, bool broadcast=false)

  Write to the specified register on the camera.
- virtual Error ReadRegister (unsigned int address, unsigned int ∗pValue)

  Read the specified register from the camera.
- virtual Error WriteRegisterBlock (unsigned short addressHigh, unsigned int addressLow, const unsigned int ∗pBuffer, unsigned int length)

  Write to the specified register block on the camera.
- virtual Error ReadRegisterBlock (unsigned short addressHigh, unsigned int addressLow, unsigned int ∗p←Buffer, unsigned int length)

  Read from the specified register block on the camera.
- Error GetCycleTime (TimeStamp ∗timeStamp)

  Returns a Timestamp struct containing 1394 CYCLE_TIME information.
- virtual Error GetStats (CameraStats ∗pStats)

- virtual Error ResetStats ()
- virtual Error RegisterEvent (EventOptions ∗pOpts)
- virtual Error DeregisterEvent (EventOptions ∗pOpts)
- virtual Error RegisterAllEvents (EventOptions ∗pOpts)
- virtual Error DeregisterAllEvents (void)

Static Public Member Functions

- static Error StartSyncCapture (unsigned int numCameras, const GigECamera ∗∗ppCameras, const Image←EventCallback ∗pCallbackFns=NULL, const void ∗∗pCallbackDataArray=NULL)

  StartSyncCapture() with GigE Cameras is not supported.
- static const char ∗ GetRegisterString (unsigned int registerVal)

GVCP Register Operation

These functions deal with GVCP register operation on the camera.

- virtual Error WriteGVCPRegister (unsigned int address, unsigned int value, bool broadcast=false)

  Write a GVCP register.
- virtual Error ReadGVCPRegister (unsigned int address, unsigned int ∗pValue)

  Read a GVCP register.
- virtual Error WriteGVCPRegisterBlock (unsigned int address, const unsigned int ∗pBuffer, unsigned int length)

  Write a GVCP register block.
- virtual Error ReadGVCPRegisterBlock (unsigned int address, unsigned int ∗pBuffer, unsigned int length)

  Read a GVCP register block.
- virtual Error WriteGVCPMemory (unsigned int address, const unsigned char ∗pBuffer, unsigned int length)

  Write a GVCP Memory block.
- virtual Error ReadGVCPMemory (unsigned int address, unsigned char ∗pBuffer, unsigned int length)

  Read a GVCP memory block.

GigE property manipulation

These functions deal with GigE properties.

- virtual Error GetGigEProperty (GigEProperty ∗pGigEProp)

  Get the specified GigEProperty.
- virtual Error SetGigEProperty (const GigEProperty ∗pGigEProp)

  Set the specified GigEProperty.
- virtual Error DiscoverGigEPacketSize (unsigned int ∗packetSize)

  Discover the largest packet size that works for the network link between the PC and the camera.

GigE image settings

These functions deal with GigE image setting.

- virtual Error QueryGigEImagingMode (Mode mode, bool ∗isSupported)

  Check if the particular imaging mode is supported by the camera.
- virtual Error GetGigEImagingMode (Mode ∗mode)

  Get the current imaging mode on the camera.
- virtual Error SetGigEImagingMode (Mode mode)

  Set the current imaging mode to the camera.
- virtual Error GetGigEImageSettingsInfo (GigEImageSettingsInfo ∗pInfo)

  Get information about the image settings possible on the camera.
- virtual Error GetGigEImageSettings (GigEImageSettings ∗pImageSettings)

  Get the current image settings on the camera.
- virtual Error SetGigEImageSettings (const GigEImageSettings ∗pImageSettings)

  Set the image settings specified to the camera.

GigE image binning settings

These functions deal with GigE image binning settings.

- virtual Error GetGigEImageBinningSettings (unsigned int ∗horzBinnningValue, unsigned int ∗vertBinnning←Value)

  Get the current binning settings on the camera.
- virtual Error SetGigEImageBinningSettings (unsigned int horzBinnningValue, unsigned int vertBinnningValue)

  Set the specified binning values to the camera.

GigE image stream configuration

These functions deal with GigE image stream configuration.

- virtual Error GetNumStreamChannels (unsigned int ∗numChannels)

  Get the number of stream channels present on the camera.
- virtual Error GetGigEStreamChannelInfo (unsigned int channel, GigEStreamChannel ∗pChannel)

  Get the stream channel information for the specified channel.
- virtual Error SetGigEStreamChannelInfo (unsigned int channel, GigEStreamChannel ∗pChannel)

  Set the stream channel information for the specified channel.
- virtual Error GetGigEConfig (GigEConfig ∗pGigEConfig)

  Get the current gige config on the camera.
- virtual Error SetGigEConfig (const GigEConfig ∗pGigEConfig)

  Set the gige config specified to the camera.

Additional Inherited Members

9.24.1 Detailed Description

The GigECamera object represents a physical Gigabit Ethernet camera.

The object must first be connected to using Connect() before any other operations can proceed.

Please see Camera.h for basic functions that this class inherits from.

9.24.2 Constructor & Destructor Documentation

9.24.2.1 GigECamera()

```
GigECamera ( )
```

Default constructor.

9.24.2.2 ∼GigECamera()

```
virtual ~GigECamera ( )  [virtual]
```

Default destructor.

9.24.3 Member Function Documentation

9.24.3.1 Connect()

```
virtual Error Connect (
             PGRGuid * pGuid = NULL )  [virtual]
```

The following functions are inherited from CameraBase.

See CameraBase.h for further information.

Implements CameraBase.

9.24.3.2 DeregisterAllEvents()

```
virtual Error DeregisterAllEvents (
             void  )  [virtual]
```

Implements CameraBase.

9.24.3.3 DeregisterEvent()

```
virtual Error DeregisterEvent (
            EventOptions * pOpts )  [virtual]
```

Implements CameraBase.

9.24.3.4 Disconnect()

```
virtual Error Disconnect ( )  [virtual]
```

Disconnects the camera object from the camera.

This allows another physical camera specified by a GUID to be connected to the camera object.

See also

Connect()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.5 DiscoverGigEPacketSize()

```
virtual Error DiscoverGigEPacketSize (
            unsigned int * packetSize )  [virtual]
```

Discover the largest packet size that works for the network link between the PC and the camera.

This is useful in cases where there may be multiple links between the PC and the camera and there is a possiblity of a component not supporting the recommended jumbo frame packet size of 9000.

Parameters

packetSize	The maximum packet size supported by the link.

Returns

An Error indicating the success or failure of the function.

9.24.3.6 EnableLUT()

```
virtual Error EnableLUT (
            bool on )  [virtual]
```

Enable or disable LUT functionality on the camera.

Parameters

on	Whether to enable or disable LUT.

See also

GetLUTInfo()
GetLUTChannel()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.7 FireSoftwareTrigger()

```
virtual Error FireSoftwareTrigger (
            bool broadcast = false )  [virtual]
```

Fire the software trigger according to the DCAM specifications.

Parameters

broadcast	Whether the action should be broadcast.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.8 GetActiveLUTBank()

```
virtual Error GetActiveLUTBank (
            unsigned int * pActiveBank )  [virtual]
```

Get the LUT bank that is currently being used.

For cameras with PGR LUT, the active bank is always 0.

Parameters

pActiveBank	The currently active bank.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.9 GetCameraInfo()

```
virtual Error GetCameraInfo (
            CameraInfo * pCameraInfo )  [virtual]
```

Retrieves information from the camera such as serial number, model name and other camera information.

Parameters

pCameraInfo	Pointer to the camera information structure to be filled.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.10 GetConfiguration()

```
virtual Error GetConfiguration (
            FC2Config * pConfig )  [virtual]
```

Get the configuration associated with the camera object.

Parameters

pConfig	Pointer to the configuration structure to be filled.

See also

SetConfiguration()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.11 GetCycleTime()

```
Error GetCycleTime (
            TimeStamp * timeStamp )  [virtual]
```

Returns a Timestamp struct containing 1394 CYCLE_TIME information.

Parameters

registerVal	The register value to query.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.12 GetEmbeddedImageInfo()

```
virtual Error GetEmbeddedImageInfo (
            EmbeddedImageInfo * pInfo )  [virtual]
```

Get the current status of the embedded image information register, as well as the availability of each embedded property.

Parameters

pInfo	Structure to be filled.

See also

SetEmbeddedImageInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.13 GetGigEConfig()

```
virtual Error GetGigEConfig (
            GigEConfig * pGigEConfig )  [virtual]
```

Get the current gige config on the camera.

Parameters

pGigEConfig	Current configuration on camera.

Returns

An Error indicating the success or failure of the function.

9.24.3.14 GetGigEImageBinningSettings()

```
virtual Error GetGigEImageBinningSettings (
            unsigned int * horzBinnningValue,
            unsigned int * vertBinnningValue )  [virtual]
```

Get the current binning settings on the camera.

Parameters

horzBinnningValue	Current horizontal binning value.
vertBinnningValue	Current vertical binning value.

Returns

An Error indicating the success or failure of the function.

9.24.3.15 GetGigEImageSettings()

```
virtual Error GetGigEImageSettings (
            GigEImageSettings * pImageSettings )  [virtual]
```

Get the current image settings on the camera.

Parameters

pImageSettings	Current image settings on camera.

Returns

An Error indicating the success or failure of the function.

9.24.3.16 GetGigEImageSettingsInfo()

```
virtual Error GetGigEImageSettingsInfo (
            GigEImageSettingsInfo * pInfo )  [virtual]
```

Get information about the image settings possible on the camera.

Parameters

pInfo	Image settings information.

Returns

An Error indicating the success or failure of the function.

9.24.3.17 GetGigEImagingMode()

```
virtual Error GetGigEImagingMode (
            Mode * mode )  [virtual]
```

Get the current imaging mode on the camera.

Parameters

mode	Current imaging mode on the camera.

Returns

An Error indicating the success or failure of the function.

9.24.3.18 GetGigEProperty()

```
virtual Error GetGigEProperty (
            GigEProperty * pGigEProp )  [virtual]
```

Get the specified GigEProperty.

The GigEPropertyType field must be set in order for this function to succeed.

Parameters

pGigEProp	The GigE property to get.

Returns

An Error indicating the success or failure of the function.

9.24.3.19 GetGigEStreamChannelInfo()

```
virtual Error GetGigEStreamChannelInfo (
            unsigned int channel,
            GigEStreamChannel * pChannel ) [virtual]
```

Get the stream channel information for the specified channel.

Parameters

channel	Channel number to use.
pChannel	Stream channel information for the specified channel.

Returns

An Error indicating the success or failure of the function.

9.24.3.20 GetGPIOPinDirection()

```
virtual Error GetGPIOPinDirection (
            unsigned int pin,
            unsigned int * pDirection ) [virtual]
```

Get the GPIO pin direction for the specified pin.

This is not a required call when using the trigger or strobe functions as the pin direction is set automatically internally.

Parameters

pin	Pin to get the direction for.
pDirection	Direction of the pin. 0 for input, 1 for output.

See also

SetGPIOPinDirection()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.21 GetLUTBankInfo()

```
virtual Error GetLUTBankInfo (
             unsigned int bank,
             bool * pReadSupported,
             bool * pWriteSupported )  [virtual]
```

Query the read/write status of a single LUT bank.

Parameters

bank	The bank to query.
pReadSupported	Whether reading from the bank is supported.
pWriteSupported	Whether writing to the bank is supported.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.22 GetLUTChannel()

```
virtual Error GetLUTChannel (
             unsigned int bank,
             unsigned int channel,
             unsigned int sizeEntries,
             unsigned int * pEntries )  [virtual]
```

Get the LUT channel settings from the camera.

Parameters

bank	Bank to retrieve.
channel	Channel to retrieve.
sizeEntries	Number of entries in LUT table to read.
pEntries	Array to store LUT entries.

See also

GetLUTInfo()
EnableLUT()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.23 GetLUTInfo()

```
virtual Error GetLUTInfo (
            LUTData * pData )  [virtual]
```

Query if LUT support is available on the camera.

Note that some cameras may report support for the LUT and return an inputBitDepth of 0. In these cases use log2(numEntries) for the inputBitDepth.

Parameters

pData	The LUT structure to be filled.

See also

EnableLUT()
GetLUTChannel()
SetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.24 GetMemoryChannel()

```
virtual Error GetMemoryChannel (
            unsigned int * pCurrentChannel )  [virtual]
```

Retrieve the current memory channel from the camera.

Parameters

pCurrentChannel	Current memory channel.

See also

SaveToMemoryChannel()
RestoreFromMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.25 GetMemoryChannelInfo()

```
virtual Error GetMemoryChannelInfo (
            unsigned int * pNumChannels )  [virtual]
```

Query the camera for memory channel support.

If the number of channels is 0, then memory channel support is not available.

Parameters

pNumChannels	Number of memory channels supported.

See also

GetMemoryChannel()
SaveToMemoryChannel()
RestoreFromMemoryChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.26 GetNumStreamChannels()

```
virtual Error GetNumStreamChannels (
            unsigned int * numChannels )  [virtual]
```

Get the number of stream channels present on the camera.

Parameters

numChannels	Number of stream channels present.

Returns

An Error indicating the success or failure of the function.

9.24.3.27 GetProperty()

```
virtual Error GetProperty (
            Property * pProp )  [virtual]
```

Reads the settings for the specified property from the camera.

The property type must be specified in the Property structure passed into the function in order for the function to succeed. If auto is on, the integer and abs values returned may not be consistent with each other.

Parameters

pProp	Pointer to the Property structure to be filled.

See also

GetPropertyInfo()
SetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.28 GetPropertyInfo()

```
virtual Error GetPropertyInfo (
            PropertyInfo * pPropInfo )  [virtual]
```

Retrieves information about the specified camera property.

The property type must be specified in the PropertyInfo structure passed into the function in order for the function to succeed.

Parameters

pPropInfo	Pointer to the PropertyInfo structure to be filled.

See also

GetProperty()
SetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.29 GetRegisterString()

```
static const char* GetRegisterString (
             unsigned int registerVal )  [static]
```

9.24.3.30 GetStats()

```
virtual Error GetStats (
             CameraStats * pStats )  [virtual]
```

Implements CameraBase.

9.24.3.31 GetStrobe()

```
virtual Error GetStrobe (
             StrobeControl * pStrobeControl )  [virtual]
```

Retrieve current strobe settings from the camera.

The strobe pin must be specified in the structure before being passed in to the function.

Parameters

pStrobeControl	Structure to receive strobe settings.

See also

GetStrobeInfo()
SetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.32 GetStrobeInfo()

```
virtual Error GetStrobeInfo (
            StrobeInfo * pStrobeInfo )  [virtual]
```

Retrieve strobe information from the camera.

Parameters

pStrobeInfo	Structure to receive strobe information.

See also

GetStrobe()
SetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.33 GetTriggerDelay()

```
virtual Error GetTriggerDelay (
            TriggerDelay * pTriggerDelay )  [virtual]
```

Retrieve current trigger delay settings from the camera.

Parameters

pTriggerDelay	Structure to receive trigger delay settings.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.34 GetTriggerDelayInfo()

```
virtual Error GetTriggerDelayInfo (
            TriggerDelayInfo * pTriggerDelayInfo )  [virtual]
```

Retrieve trigger delay information from the camera.

Parameters

pTriggerDelayInfo	Structure to receive trigger delay information.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.35 GetTriggerMode()

```
virtual Error GetTriggerMode (
            TriggerMode * pTriggerMode )  [virtual]
```

Retrieve current trigger settings from the camera.

Parameters

pTriggerMode	Structure to receive trigger mode settings.

See also

GetTriggerModeInfo()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.36 GetTriggerModeInfo()

```
virtual Error GetTriggerModeInfo (
            TriggerModeInfo * pTriggerModeInfo )  [virtual]
```

Retrieve trigger information from the camera.

Parameters

pTriggerModeInfo	Structure to receive trigger information.

See also

GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.37 IsConnected()

```
virtual bool IsConnected ( )  [virtual]
```

Checks if the camera object is connected to a physical camera specified by a GUID.

See also

Connect()
Disconnect()

Returns

Whether Connect() was called on the camera object.

Implements CameraBase.

9.24.3.38 QueryGigEImagingMode()

```
virtual Error QueryGigEImagingMode (
            Mode mode,
            bool * isSupported )  [virtual]
```

Check if the particular imaging mode is supported by the camera.

Parameters

mode	The mode to check.
isSupported	Whether the mode is supported.

Returns

An Error indicating the success or failure of the function.

9.24.3.39 ReadGVCPMemory()

```
virtual Error ReadGVCPMemory (
            unsigned int address,
            unsigned char * pBuffer,
            unsigned int length )  [virtual]
```

Read a GVCP memory block.

Parameters

address	GVCP address to be read from.
pBuffer	Array for data to be read into.
length	Size of array, in quadlets.

Returns

An Error indicating the success or failure of the function.

9.24.3.40 ReadGVCPRegister()

```
virtual Error ReadGVCPRegister (
              unsigned int address,
              unsigned int * pValue )  [virtual]
```

Read a GVCP register.

Parameters

address	GVCP address to be read from.
pValue	The value that is read.

Returns

An Error indicating the success or failure of the function.

9.24.3.41 ReadGVCPRegisterBlock()

```
virtual Error ReadGVCPRegisterBlock (
              unsigned int address,
              unsigned int * pBuffer,
              unsigned int length )  [virtual]
```

Read a GVCP register block.

Parameters

address	GVCP address to be read from.
pBuffer	Array for data to be read into.
length	Size of array, in quadlets.

Returns

An Error indicating the success or failure of the function.

9.24.3.42 ReadRegister()

```
virtual Error ReadRegister (
              unsigned int address,
              unsigned int * pValue )  [virtual]
```

Read the specified register from the camera.

Parameters

address	DCAM address to be read from.
pValue	The value that is read.

See also

WriteRegister()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.43 ReadRegisterBlock()

```
virtual Error ReadRegisterBlock (
            unsigned short addressHigh,
            unsigned int addressLow,
            unsigned int * pBuffer,
            unsigned int length )  [virtual]
```

Read from the specified register block on the camera.

Parameters

addressHigh	Top 16 bits of the 48 bit absolute address to read from.
addressLow	Bottom 32 bits of the 48 bits absolute address to read from.
pBuffer	Array to store read data.
length	Size of array, in quadlets.

See also

WriteRegisterBlock()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.44 RegisterAllEvents()

```
virtual Error RegisterAllEvents (
            EventOptions * pOpts )  [virtual]
```

Implements CameraBase.

9.24.3.45 RegisterEvent()

```
virtual Error RegisterEvent (
            EventOptions * pOpts )  [virtual]
```

Implements CameraBase.

9.24.3.46 ResetStats()

```
virtual Error ResetStats ( )  [virtual]
```

Implements CameraBase.

9.24.3.47 RestoreFromMemoryChannel()

```
virtual Error RestoreFromMemoryChannel (
            unsigned int channel )  [virtual]
```

Restore the specfied current memory channel.

Parameters

channel	Memory channel to restore from.

See also

GetMemoryChannel()
SaveToMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.48 RetrieveBuffer()

```
virtual Error RetrieveBuffer (
            Image * pImage )  [virtual]
```

Retrieves the the next image object containing the next image.

If the grab mode has not been set, or has been set to DROP_FRAMES the default behavior is to requeue images for DMA if they have not been retrieved by the time the next image transfer completes. If BUFFER_FRAMES is specified, the next image in the sequence will be retrieved. Note that for the BUFFER_FRAMES case, if retrieval does not keep up with the DMA process, images will be lost. The default behavior is to perform DROP_FRAMES image retrieval.

Parameters

pImage	Pointer to Image object to store image data.

See also

StartCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.49 SaveToMemoryChannel()

```
virtual Error SaveToMemoryChannel (
            unsigned int channel )  [virtual]
```

Save the current settings to the specfied current memory channel.

Parameters

channel	Memory channel to save to.

See also

GetMemoryChannel()
RestoreFromMemoryChannel()
GetMemoryChannelInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.50 SetActiveLUTBank()

```
virtual Error SetActiveLUTBank (
            unsigned int activeBank )  [virtual]
```

Set the LUT bank that will be used.

Parameters

activeBank	The bank to be set as active.

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.51 SetCallback()

```
virtual Error SetCallback (
            ImageEventCallback callbackFn,
            const void * pCallbackData = NULL )  [virtual]
```

Sets the callback data to be used on completion of image transfer.

To clear the current stored callback data, pass in NULL for both arguments.

Parameters

callbackFn	A function to be called when a new image is received.
pCallbackData	A pointer to data that can be passed to the callback function.

See also

StartCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.52 SetConfiguration()

```
virtual Error SetConfiguration (
            const FC2Config * pConfig )  [virtual]
```

Set the configuration associated with the camera object.

Parameters

pConfig	Pointer to the configuration structure to be used.

See also

GetConfiguration()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.53 SetEmbeddedImageInfo()

```
virtual Error SetEmbeddedImageInfo (
            EmbeddedImageInfo * pInfo )  [virtual]
```

Sets the on/off values of the embedded image information structure to the camera.

Parameters

pInfo	Structure to be used.

See also

GetEmbeddedImageInfo()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.54 SetGigEConfig()

```
virtual Error SetGigEConfig (
            const GigEConfig * pGigEConfig )  [virtual]
```

Set the gige config specified to the camera.

Parameters

pGigEConfig	configuration to set to camera.

Returns

An Error indicating the success or failure of the function.

9.24.3.55 SetGigEImageBinningSettings()

```
virtual Error SetGigEImageBinningSettings (
            unsigned int horzBinnningValue,
            unsigned int vertBinnningValue )  [virtual]
```

Set the specified binning values to the camera.

It is recommended that GetGigEImageSettingsInfo() be called after this function succeeds to retrieve the new image settings information for the new binning mode.

Parameters

horzBinnningValue	Horizontal binning value.
vertBinnningValue	Vertical binning value.

Returns

An Error indicating the success or failure of the function.

9.24.3.56 SetGigEImageSettings()

```
virtual Error SetGigEImageSettings (
            const GigEImageSettings * pImageSettings )  [virtual]
```

Set the image settings specified to the camera.

Parameters

pImageSettings	Image settings to set to camera.

Returns

An Error indicating the success or failure of the function.

9.24.3.57 SetGigEImagingMode()

```
virtual Error SetGigEImagingMode (
            Mode mode )  [virtual]
```

Set the current imaging mode to the camera.

This should only be done when the camera is not streaming images.

Parameters

mode	Imaging mode to set to the camera.

Returns

An Error indicating the success or failure of the function.

9.24.3.58 SetGigEProperty()

```
virtual Error SetGigEProperty (
            const GigEProperty * pGigEProp )  [virtual]
```

Set the specified GigEProperty.

The GigEPropertyType field must be set in order for this function to succeed.

Parameters

pGigEProp	The GigE property to set.

Returns

An Error indicating the success or failure of the function.

9.24.3.59 SetGigEStreamChannelInfo()

```
virtual Error SetGigEStreamChannelInfo (
            unsigned int channel,
            GigEStreamChannel * pChannel )  [virtual]
```

Set the stream channel information for the specified channel.

Note that the source UDP port of the stream channel is read-only.

Parameters

channel	Channel number to use.
pChannel	Stream channel information to use for the specified channel.

Returns

An Error indicating the success or failure of the function.

9.24.3.60 SetGPIOPinDirection()

```
virtual Error SetGPIOPinDirection (
            unsigned int pin,
            unsigned int direction,
            bool broadcast = false )  [virtual]
```

Set the GPIO pin direction for the specified pin.

This is useful if there is a need to set the pin into an input pin (i.e. to read the voltage) off the pin without setting it as a trigger source. This is not a required call when using the trigger or strobe functions as the pin direction is set automatically internally.

Parameters

pin	Pin to get the direction for.
direction	Direction of the pin. 0 for input, 1 for output.
broadcast	Whether the action should be broadcast.

See also

GetGPIOPinDirection()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.61 SetLUTChannel()

```
virtual Error SetLUTChannel (
            unsigned int bank,
            unsigned int channel,
            unsigned int sizeEntries,
            const unsigned int * pEntries )  [virtual]
```

Set the LUT channel settings to the camera.

Parameters

bank	Bank to set.
channel	Channel to set.
sizeEntries	Number of entries in LUT table to write. This must be the same size as numEntries returned by GetLutInfo().
pEntries	Array containing LUT entries to write.

See also

GetLUTInfo()
EnableLUT()
GetLUTChannel()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.62 SetProperty()

```
virtual Error SetProperty (
            const Property * pProp,
            bool broadcast = false )  [virtual]
```

Writes the settings for the specified property to the camera.

The property type must be specified in the Property structure passed into the function in order for the function to succeed. The absControl flag controls whether the absolute or integer value is written to the camera. Use GetPropertyInfo() to query which options are available for a specific property.

Parameters

pProp	Pointer to the Property structure to be used.
broadcast	Whether the action should be broadcast.

See also

GetPropertyInfo()
GetProperty()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.63 SetStrobe()

```
virtual Error SetStrobe (
            const StrobeControl * pStrobeControl,
            bool broadcast = false )  [virtual]
```

Set current strobe settings to the camera.

The strobe pin must be specified in the structure before being passed in to the function.

Parameters

pStrobeControl	Structure providing strobe settings.
broadcast	Whether the action should be broadcast.

See also

GetStrobeInfo()
GetStrobe()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.64 SetTriggerDelay()

```
virtual Error SetTriggerDelay (
            const TriggerDelay * pTriggerDelay,
            bool broadcast = false )  [virtual]
```

Set the specified trigger delay settings to the camera.

Parameters

pTriggerDelay	Structure providing trigger delay settings.
broadcast	Whether the action should be broadcast.

See also

GetTriggerModeInfo()
GetTriggerMode()
SetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.65 SetTriggerMode()

```
virtual Error SetTriggerMode (
            const TriggerMode * pTriggerMode,
            bool broadcast = false )  [virtual]
```

Set the specified trigger settings to the camera.

Parameters

pTriggerMode	Structure providing trigger mode settings.
broadcast	Whether the action should be broadcast.

See also

GetTriggerModeInfo()
GetTriggerMode()
GetTriggerDelayInfo()
GetTriggerDelay()
SetTriggerDelay()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.66 SetUserBuffers()

```
virtual Error SetUserBuffers (
            unsigned char *const pMemBuffers,
            int size,
            int numBuffers )  [virtual]
```

Specify user allocated buffers to use as image data buffers.

To prevent image tearing, the size of each buffer should be equal to ((unsigned int)(bufferSize + packetSize - 1)/packetSize) $*$ packetSize. The total size should be (size $*$ numBuffers) or larger. The packet Size that should be used differs between interfaces: Firewire: Use the Format7 packet size. Usb2: First round to Format7 packet size then round to 512 bytes. Usb3: Use a packet size of 1024 bytes. GigE: No need to do any rounding on GigE

Parameters

pMemBuffers	Pointer to memory buffers to be written to.
size	The size of each buffer (in bytes).
numBuffers	Number of buffers in the array.

See also

StartCapture()
RetrieveBuffer()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.67 StartCapture()

```
virtual Error StartCapture (
            ImageEventCallback callbackFn = NULL,
            const void * pCallbackData = NULL )  [virtual]
```

Starts isochronous image capture.

It will use either the current video mode or the most recently set video mode of the camera. The optional callback function parameter is called on completion of image transfer. When a callback function is specified, the grab mode will determine how images are delivered. If the grab mode has not been set, or has been set to DROP_FRAM←ES the default behavior is to requeue images for DMA if they have not been delivered by the time the next image transfer completes. If BUFFER_FRAMES is specified, the next image in the sequence will be delivered. Note that for the BUFFER_FRAMES case, if delivery does not keep up with the DMA process, images will be lost. The default behavior is to perform DROP_FRAMES image delivery Alternatively, the callback parameter can be set to NULL and RetrieveBuffer() can be called as a blocking call to get the image data.

Parameters

callbackFn	A function to be called when a new image is received.
pCallbackData	A pointer to data that can be passed to the callback function.

See also

RetrieveBuffer()
StartSyncCapture()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.68 StartSyncCapture()

```
static Error StartSyncCapture (
            unsigned int numCameras,
            const GigECamera ** ppCameras,
            const ImageEventCallback * pCallbackFns = NULL,
            const void ** pCallbackDataArray = NULL )  [static]
```

StartSyncCapture() with GigE Cameras is not supported.

This function has been deprecated and will be removed in a future version of FlyCapture.

9.24.3.69 StopCapture()

```
virtual Error StopCapture ( )  [virtual]
```

Stops isochronous image transfer and cleans up all associated resources.

If an image callback function (specified in the StartCapture() call) is currently executing, StopCapture() will not return until after the callback has completed.

See also

StartCapture()
RetrieveBuffer()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.70 WaitForBufferEvent()

```
virtual Error WaitForBufferEvent (
            Image * pImage,
            unsigned int eventNumber )  [virtual]
```

Retrieves the next image event containing the next part of the image.

Parameters

pImage	Pointer to Image object to store image data.
eventNumber	The event number to wait for.

See also

StartCapture()
RetrieveBuffer()
StopCapture()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.71 WriteGVCPMemory()

```
virtual Error WriteGVCPMemory (
             unsigned int address,
             const unsigned char * pBuffer,
             unsigned int length )  [virtual]
```

Write a GVCP Memory block.

Parameters

address	GVCP address to be write to.
pBuffer	Array containing data to be written in increments.
length	Size of array, in quadlets.

Returns

An Error indicating the success or failure of the function.

9.24.3.72 WriteGVCPRegister()

```
virtual Error WriteGVCPRegister (
             unsigned int address,
             unsigned int value,
             bool broadcast = false )  [virtual]
```

Write a GVCP register.

Parameters

address	GVCP address to be written to.
value	The value to be written.
broadcast	Whether the action should be broadcast.

Returns

An Error indicating the success or failure of the function.

9.24.3.73 WriteGVCPRegisterBlock()

```
virtual Error WriteGVCPRegisterBlock (
            unsigned int address,
            const unsigned int * pBuffer,
            unsigned int length )  [virtual]
```

Write a GVCP register block.

Parameters

address	GVCP address to be write to.
pBuffer	Array containing data to be written.
length	Size of array, in quadlets.

Returns

An Error indicating the success or failure of the function.

9.24.3.74 WriteRegister()

```
virtual Error WriteRegister (
            unsigned int address,
            unsigned int value,
            bool broadcast = false )  [virtual]
```

Write to the specified register on the camera.

Parameters

address	DCAM address to be written to.
value	The value to be written.
broadcast	Whether the action should be broadcast.

See also

ReadRegister()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

9.24.3.75 WriteRegisterBlock()

```
virtual Error WriteRegisterBlock (
            unsigned short addressHigh,
            unsigned int addressLow,
            const unsigned int * pBuffer,
            unsigned int length )  [virtual]
```

Write to the specified register block on the camera.

Parameters

addressHigh	Top 16 bits of the 48 bit absolute address to write to.
addressLow	Bottom 32 bits of the 48 bits absolute address to write to.
pBuffer	Array containing data to be written.
length	Size of array, in quadlets.

See also

ReadRegisterBlock()

Returns

An Error indicating the success or failure of the function.

Implements CameraBase.

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

- GigECamera.h

9.25 GigEConfig Struct Reference

Configuration for a GigE camera.

Public Member Functions

- GigEConfig ()

Public Attributes

- bool enablePacketResend

  Turn on/off packet resend functionality.
- unsigned int registerTimeoutRetries

  Number of retries to perform when a register read/write timeout is received by the library.
- unsigned int registerTimeout

  Register read/write timeout value, in microseconds.

9.25.1 Detailed Description

Configuration for a GigE camera.

These options are options that are generally should be set before starting isochronous transfer.

9.25.2 Constructor & Destructor Documentation

9.25.2.1 GigEConfig()

```
GigEConfig ( )  [inline]
```

9.25.3 Member Data Documentation

9.25.3.1 enablePacketResend

```
bool enablePacketResend
```

Turn on/off packet resend functionality.

9.25.3.2 registerTimeout

```
unsigned int registerTimeout
```

Register read/write timeout value, in microseconds.

The default value is dependent on the interface type.

9.25.3.3 registerTimeoutRetries

```
unsigned int registerTimeoutRetries
```

Number of retries to perform when a register read/write timeout is received by the library.

The default value is 0.

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

- FlyCapture2Defs.h

9.26 GigEImageSettings Struct Reference

Image settings for a GigE camera.

Public Member Functions

- GigEImageSettings ()

Public Attributes

- unsigned int offsetX

  Horizontal image offset.
- unsigned int offsetY

  Vertical image offset.
- unsigned int width

  Width of image.
- unsigned int height

  Height of image.
- PixelFormat pixelFormat

  Pixel format of image.
- unsigned int reserved [8]

  Reserved for future use.

9.26.1 Detailed Description

Image settings for a GigE camera.

9.26.2 Constructor & Destructor Documentation

9.26.2.1 GigEImageSettings()

```
GigEImageSettings ( )  [inline]
```

9.26.3 Member Data Documentation

9.26.3.1 height

```
unsigned int height
```

Height of image.

9.26.3.2 offsetX

```
unsigned int offsetX
```

Horizontal image offset.

9.26.3.3 offsetY

```
unsigned int offsetY
```

Vertical image offset.

9.26.3.4 pixelFormat

```
PixelFormat pixelFormat
```

Pixel format of image.

9.26.3.5 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.26.3.6 width

```
unsigned int width
```

Width of image.

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

- FlyCapture2Defs.h

9.27 GigEImageSettingsInfo Struct Reference

Format 7 information for a single mode.

Public Member Functions

- GigEImageSettingsInfo ()

Public Attributes

- unsigned int maxWidth

  Maximum image width.
- unsigned int maxHeight

  Maximum image height.
- unsigned int offsetHStepSize

  Horizontal step size for the offset.
- unsigned int offsetVStepSize

  Vertical step size for the offset.
- unsigned int imageHStepSize

  Horizontal step size for the image.
- unsigned int imageVStepSize

  Vertical step size for the image.
- unsigned int pixelFormatBitField

  Supported pixel formats in a bit field.
- unsigned int vendorPixelFormatBitField

  Vendor unique pixel formats in a bit field.
- unsigned int reserved [16]

  Reserved for future use.

9.27.1 Detailed Description

Format 7 information for a single mode.

9.27.2 Constructor & Destructor Documentation

9.27.2.1 GigEImageSettingsInfo()

```
GigEImageSettingsInfo ( )  [inline]
```

9.27.3 Member Data Documentation

9.27.3.1 imageHStepSize

```
unsigned int imageHStepSize
```

Horizontal step size for the image.

9.27.3.2 imageVStepSize

```
unsigned int imageVStepSize
```

Vertical step size for the image.

9.27.3.3 maxHeight

```
unsigned int maxHeight
```

Maximum image height.

9.27.3.4 maxWidth

```
unsigned int maxWidth
```

Maximum image width.

9.27.3.5 offsetHStepSize

```
unsigned int offsetHStepSize
```

Horizontal step size for the offset.

9.27.3.6 offsetVStepSize

```
unsigned int offsetVStepSize
```

Vertical step size for the offset.

9.27.3.7 pixelFormatBitField

```
unsigned int pixelFormatBitField
```

Supported pixel formats in a bit field.

9.27.3.8 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

9.27.3.9 vendorPixelFormatBitField

```
unsigned int vendorPixelFormatBitField
```

Vendor unique pixel formats in a bit field.

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

- FlyCapture2Defs.h

9.28 GigEProperty Struct Reference

A GigE property.

Public Attributes

- GigEPropertyType propType
  The type of property.
- bool isReadable
  Whether the property is readable.
- bool isWritable
  Whether the property is writable.
- unsigned int min
  Minimum value.
- unsigned int max
  Maximum value.
- unsigned int value
  Current value.

9.28.1 Detailed Description

A GigE property.

9.28.2 Member Data Documentation

9.28.2.1 isReadable

```
bool isReadable
```

Whether the property is readable.

If this is false, then no other value in this structure is valid.

9.28.2.2 isWritable

```
bool isWritable
```

Whether the property is writable.

9.28.2.3 max

```
unsigned int max
```

Maximum value.

9.28.2.4 min

```
unsigned int min
```

Minimum value.

9.28.2.5 propType

```
GigEPropertyType propType
```

The type of property.

9.28.2.6 value

```
unsigned int value
```

Current value.

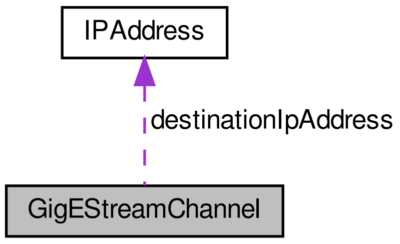
The documentation for this struct was generated from the following file:

- FlyCapture2Defs.h

9.29 GigEStreamChannel Struct Reference

Information about a single GigE stream channel.

Collaboration diagram for GigEStreamChannel:



Public Member Functions

- GigEStreamChannel ()

Public Attributes

- unsigned int networkInterfaceIndex

  Network interface index used (or to use).
- unsigned int hostPort

  Host port on the PC where the camera will send the data stream.
- bool doNotFragment

  Disable IP fragmentation of packets.
- unsigned int packetSize

  Packet size, in bytes.
- unsigned int interPacketDelay

  Inter packet delay, in timestamp counter units.
- IPAddress destinationIpAddress

  Destination IP address.
- unsigned int sourcePort

  Source UDP port of the stream channel.

9.29.1 Detailed Description

Information about a single GigE stream channel.

9.29.2 Constructor & Destructor Documentation

9.29.2.1 GigEStreamChannel()

```
GigEStreamChannel ( ) [inline]
```

9.29.3 Member Data Documentation

9.29.3.1 destinationIpAddress

```
IPAddress destinationIpAddress
```

Destination IP address.

It can be a multicast or unicast address.

9.29.3.2 doNotFragment

```
bool doNotFragment
```

Disable IP fragmentation of packets.

9.29.3.3 hostPort

```
unsigned int hostPort
```

Host port on the PC where the camera will send the data stream.

9.29.3.4 interPacketDelay

```
unsigned int interPacketDelay
```

Inter packet delay, in timestamp counter units.

9.29.3.5 networkInterfaceIndex

```
unsigned int networkInterfaceIndex
```

Network interface index used (or to use).

9.29.3.6 packetSize

```
unsigned int packetSize
```

Packet size, in bytes.

9.29.3.7 sourcePort

```
unsigned int sourcePort
```

Source UDP port of the stream channel.

Read only.

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

- FlyCapture2Defs.h

9.30 H264Option Struct Reference

Options for saving H264 files.

Public Member Functions

- H264Option ()

Public Attributes

- float frameRate

  Frame rate of the stream.
- unsigned int width

  Width of source image.
- unsigned int height

  Height of source image.
- unsigned int bitrate

  Bitrate to encode at.
- unsigned int reserved [256]

  Reserved for future use.

9.30.1 Detailed Description

Options for saving H264 files.

9.30.2 Constructor & Destructor Documentation

9.30.2.1 H264Option()

```
H264Option ( )  [inline]
```

9.30.3 Member Data Documentation

9.30.3.1 bitrate

```
unsigned int bitrate
```

Bitrate to encode at.

9.30.3.2 frameRate

```
float frameRate
```

Frame rate of the stream.

9.30.3.3 height

```
unsigned int height
```

Height of source image.

9.30.3.4 reserved

```
unsigned int reserved[256]
```

Reserved for future use.

9.30.3.5 width

```
unsigned int width
```

Width of source image.

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

- FlyCapture2VideoDefs.h

9.31 Image Class Reference

The Image class is used to retrieve images from a camera, convert between multiple pixel formats and save images to disk.

Public Member Functions

- Image ()

  Default constructor.
- Image (unsigned int rows, unsigned int cols, unsigned int stride, unsigned char ∗pData, unsigned int dataSize, PixelFormat format, BayerTileFormat bayerFormat=NONE)

  Construct an Image object with the specified arguments.
- Image (unsigned int rows, unsigned int cols, unsigned int stride, unsigned char ∗pData, unsigned int dataSize, unsigned int receivedDataSize, PixelFormat format, BayerTileFormat bayerFormat=NONE)

  Construct an Image object with the specified arguments.
- Image (unsigned char ∗pData, unsigned int dataSize)

  Construct an Image object with the specified arguments.
- Image (unsigned int rows, unsigned int cols, PixelFormat format, BayerTileFormat bayerFormat=NONE)

  Construct an Image object with the specified arguments.
- Image (const Image &image)

  Copy constructor.
- virtual ∼Image ()

  Default destructor.
- virtual Image & operator= (const Image &image)

  Assignment operator.
- virtual unsigned char ∗ operator[ ] (unsigned int index)

  Indexing operator.
- virtual unsigned char ∗ operator() (unsigned int row, unsigned int col)

  Indexing operator.
- virtual Error DeepCopy (const Image ∗pImage)

  Perform a deep copy of the Image.
- virtual Error SetDimensions (unsigned int rows, unsigned int cols, unsigned int stride, PixelFormat pixel↩ Format, BayerTileFormat bayerFormat)

  Sets the dimensions of the image object.
- virtual Error SetData (const unsigned char ∗pData, unsigned int dataSize)

  Set the data of the Image object.
- virtual Error SetBlockId (const unsigned int blockId)

  Set the block id of the Image object.
- virtual unsigned int GetBlockId ()

get the block id of the Image object.

- virtual PixelFormat GetPixelFormat () const

  Get the current pixel format.
- virtual ColorProcessingAlgorithm GetColorProcessing () const

  Get the current color processing algorithm.
- virtual Error SetColorProcessing (ColorProcessingAlgorithm colorProc)

  Set the color processing algorithm.
- virtual unsigned int GetCols () const

  Get the number of columns in the image.
- virtual unsigned int GetRows () const

  Get the number of rows in the image.
- virtual unsigned int GetStride () const

  Get the stride in the image.
- virtual unsigned int GetBitsPerPixel () const

  Get the bits per pixel of the image.
- virtual BayerTileFormat GetBayerTileFormat () const

  Get the Bayer tile format of the image.
- virtual unsigned int GetDataSize () const

  Get the size of the buffer associated with the image, in bytes.
- virtual unsigned int GetReceivedDataSize () const

  Get the size of the compressed data, in bytes.
- virtual void GetDimensions (unsigned int ∗pRows, unsigned int ∗pCols=NULL, unsigned int ∗pStride=NULL, PixelFormat ∗pPixelFormat=NULL, BayerTileFormat ∗pBayerFormat=NULL) const

  Get the image dimensions associated with the image.
- virtual unsigned char ∗ GetData ()

  Get a pointer to the data associated with the image.
- virtual unsigned char ∗const GetData () const
- virtual ImageMetadata GetMetadata () const

  Get the metadata associated with the image.
- virtual Error CalculateStatistics (ImageStatistics ∗pStatistics)

  Calculate statistics associated with the image.
- virtual TimeStamp GetTimeStamp () const

  Get the timestamp data associated with the image.
- virtual Error Save (const char ∗pFilename, ImageFileFormat format=FROM_FILE_EXT)

  Save the image to the specified file name with the file format specified.
- virtual Error Save (const char ∗pFilename, PNGOption ∗pOption)

  Save the image to the specified file name with the options specified.
- virtual Error Save (const char ∗pFilename, PPMOption ∗pOption)

  Save the image to the specified file name with the options specified.
- virtual Error Save (const char ∗pFilename, PGMOption ∗pOption)

  Save the image to the specified file name with the options specified.
- virtual Error Save (const char ∗pFilename, TIFFOption ∗pOption)

  Save the image to the specified file name with the options specified.
- virtual Error Save (const char ∗pFilename, JPEGOption ∗pOption)

  Save the image to the specified file name with the options specified.
- virtual Error Save (const char ∗pFilename, JPG2Option ∗pOption)

  Save the image to the specified file name with the options specified.
- virtual Error Save (const char ∗pFilename, BMPOption ∗pOption)

  Save the image to the specified file name with the options specified.
- virtual Error Convert (PixelFormat format, Image ∗pDestImage) const

  Converts the current image buffer to the specified output format and stores the result in the specified image.

- virtual Error Convert (Image ∗pDestImage) const

    Converts the current image buffer to the specified output format and stores the result in the specified image.
- virtual Error ReleaseBuffer ()

    Release the buffer associated with the Image.

Static Public Member Functions

- static Error SetDefaultColorProcessing (ColorProcessingAlgorithm defaultMethod)

    Set the default color processing algorithm.
- static ColorProcessingAlgorithm GetDefaultColorProcessing ()

    Get the default color processing algorithm.
- static Error SetDefaultOutputFormat (PixelFormat format)

    Set the default output pixel format.
- static PixelFormat GetDefaultOutputFormat ()

    Get the default output pixel format.
- static unsigned int DetermineBitsPerPixel (PixelFormat format)

    Calculate the bits per pixel for the specified pixel format.

Friends

- class Iso

9.31.1 Detailed Description

The Image class is used to retrieve images from a camera, convert between multiple pixel formats and save images to disk.

Operations on Image objects are not guaranteed to be thread safe. It is recommended that operations on Image objects be protected by thread synchronization constructs such as mutexes.

9.31.2 Constructor & Destructor Documentation

9.31.2.1 Image() [1/6]

```
Image ( )
```

Default constructor.

9.31.2.2 Image() [2/6]

```
Image (
            unsigned int rows,
            unsigned int cols,
            unsigned int stride,
            unsigned char ∗ pData,
            unsigned int dataSize,
            PixelFormat format,
            BayerTileFormat bayerFormat = NONE )
```

Construct an Image object with the specified arguments.

Ownership of the image buffer is not transferred to the Image object. It is the user's responsibility to delete the buffer when it is no longer in use.

Parameters

rows	Rows in the image.
cols	Columns in the image.
stride	Stride of the image buffer.
pData	Pointer to the image buffer.
dataSize	Size of the image buffer.
format	Pixel format.
bayerFormat	Format of the Bayer tiled raw image.

9.31.2.3 Image() [3/6]

```
Image (
            unsigned int rows,
            unsigned int cols,
            unsigned int stride,
            unsigned char * pData,
            unsigned int dataSize,
            unsigned int receivedDataSize,
            PixelFormat format,
            BayerTileFormat bayerFormat = NONE )
```

Construct an Image object with the specified arguments.

Ownership of the image buffer is not transferred to the Image object. It is the user's responsibility to delete the buffer when it is no longer in use.

Parameters

rows	Rows in the image.
cols	Columns in the image.
stride	Stride of the image buffer.
pData	Pointer to the image buffer.
dataSize	Size of the image buffer.
receivedDataSize	Actual size of data.
format	Pixel format.
bayerFormat	Format of the Bayer tiled raw image.

9.31.2.4 Image() [4/6]

```
Image (
            unsigned char * pData,
            unsigned int dataSize )
```

Construct an Image object with the specified arguments.

Ownership of the image buffer is not transferred to the Image object. It is the user's responsibility to delete the buffer when it is no longer in use.

Parameters

pData	Pointer to the image buffer.
dataSize	Size of the image buffer.

9.31.2.5 Image() [5/6]

```
Image (
            unsigned int rows,
            unsigned int cols,
            PixelFormat format,
            BayerTileFormat bayerFormat = NONE )
```

Construct an Image object with the specified arguments.

Parameters

rows	Rows in the image.
cols	Columns in the image.
format	Pixel format.
bayerFormat	Format of the Bayer tiled raw image.

9.31.2.6 Image() [6/6]

```
Image (
            const Image & image )
```

Copy constructor.

Both images will point to the same image buffer internally.

9.31.2.7 ∼Image()

```
virtual ∼Image ( )  [virtual]
```

Default destructor.

The internal image buffer will be released if there are no other Image objects holding a reference to it. This will also allow the buffer to be requeued internally.

9.31.3 Member Function Documentation

9.31.3.1 CalculateStatistics()

```
virtual Error CalculateStatistics (
             ImageStatistics * pStatistics )  [virtual]
```

Calculate statistics associated with the image.

In order to collect statistics for a particular channel, the enabled flag for the channel must be set to true. Statistics can only be collected for images in Mono8, Mono16, RGB, RGBU, BGR and BGRU.

Parameters

pStatistics	The ImageStatistics object to hold the statistics.

Returns

An Error indicating the success or failure of the function.

9.31.3.2 Convert() [1/2]

```
virtual Error Convert (
             PixelFormat format,
             Image * pDestImage ) const  [virtual]
```

Converts the current image buffer to the specified output format and stores the result in the specified image.

The destination image does not need to be configured in any way before the call is made.

Parameters

format	Output format of the converted image.
pDestImage	Destination image.

Returns

An Error indicating the success or failure of the function.

9.31.3.3 Convert() [2/2]

```
virtual Error Convert (
             Image * pDestImage ) const  [virtual]
```

Converts the current image buffer to the specified output format and stores the result in the specified image.

The destination image does not need to be configured in anyway before the call is made.

Parameters

pDestImage	Destination image.

Returns

An Error indicating the success or failure of the function.

9.31.3.4 DeepCopy()

```
virtual Error DeepCopy (
             const Image * pImage )  [virtual]
```

Perform a deep copy of the Image.

After this operation, the image contents and member variables will be the same. The Images will not share a buffer. The Image's current buffer will not be released.

Parameters

pImage	The Image to copy the data from.

Returns

An Error indicating the success or failure of the function.

9.31.3.5 DetermineBitsPerPixel()

```
static unsigned int DetermineBitsPerPixel (
             PixelFormat format )  [static]
```

Calculate the bits per pixel for the specified pixel format.

Parameters

format	The pixel format.

Returns

The bits per pixel.

9.31.3.6 GetBayerTileFormat()

```
virtual BayerTileFormat GetBayerTileFormat ( ) const  [virtual]
```

Get the Bayer tile format of the image.

Returns

The Bayer tile format.

9.31.3.7 GetBitsPerPixel()

```
virtual unsigned int GetBitsPerPixel ( ) const  [virtual]
```

Get the bits per pixel of the image.

Returns

The bits per pixel.

9.31.3.8 GetBlockId()

```
virtual unsigned int GetBlockId ( )  [virtual]
```

get the block id of the Image object.

Returns

The blockId assigned to the image.

9.31.3.9 GetColorProcessing()

```
virtual ColorProcessingAlgorithm GetColorProcessing ( ) const  [virtual]
```

Get the current color processing algorithm.

See also

SetColorProcessing()

Returns

The current color processing algorithm.

9.31.3.10 GetCols()

```
virtual unsigned int GetCols ( ) const  [virtual]
```

Get the number of columns in the image.

Returns

The number of columns.

9.31.3.11 GetData() [1/2]

```
virtual unsigned char* GetData ( )  [virtual]
```

Get a pointer to the data associated with the image.

This function is considered unsafe. The pointer returned could be invalidated if the buffer is resized or released. The pointer may also be invalidated if the Image object is passed to Camera::RetrieveBuffer(). It is recommended that a Image::DeepCopy() be performed if a seperate copy of the Image data is required for further processing.

Returns

A pointer to the image data.

9.31.3.12 GetData() [2/2]

```
virtual unsigned char* const GetData ( ) const  [virtual]
```

9.31.3.13 GetDataSize()

```
virtual unsigned int GetDataSize ( ) const  [virtual]
```

Get the size of the buffer associated with the image, in bytes.

Returns

The size of the buffer, in bytes.

9.31.3.14 GetDefaultColorProcessing()

```
static ColorProcessingAlgorithm GetDefaultColorProcessing ( )  [static]
```

Get the default color processing algorithm.

See also

SetDefaultColorProcessing()

Returns

The default color processing algorithm.

9.31.3.15 GetDefaultOutputFormat()

```
static PixelFormat GetDefaultOutputFormat ( )  [static]
```

Get the default output pixel format.

See also

SetDefaultOutputFormat()

Returns

The default pixel format.

9.31.3.16 GetDimensions()

```
virtual void GetDimensions (
             unsigned int * pRows,
             unsigned int * pCols = NULL,
             unsigned int * pStride = NULL,
             PixelFormat * pPixelFormat = NULL,
             BayerTileFormat * pBayerFormat = NULL ) const  [virtual]
```

Get the image dimensions associated with the image.

Parameters

pRows	Number of rows.
pCols	Number of columns.
pStride	The stride.
pPixelFormat	Pixel format.
pBayerFormat	Bayer tile format.

9.31.3.17 GetMetadata()

```
virtual ImageMetadata GetMetadata ( ) const  [virtual]
```

Get the metadata associated with the image.

This includes embedded image information.

Returns

Metadata associated with the image.

9.31.3.18 GetPixelFormat()

```
virtual PixelFormat GetPixelFormat ( ) const  [virtual]
```

Get the current pixel format.

Returns

The current pixel format.

9.31.3.19 GetReceivedDataSize()

```
virtual unsigned int GetReceivedDataSize ( ) const  [virtual]
```

Get the size of the compressed data, in bytes.

A compressed image will have a maximum size equal to GetDataSize(), but may actually contain less data, depending on the compression level. For uncompressed images, a value smaller than the data size may indicate lost data.

Returns

The size of the compressed data, in bytes. 0 when camera not sending compressed data.

9.31.3.20 GetRows()

```
virtual unsigned int GetRows ( ) const  [virtual]
```

Get the number of rows in the image.

Returns

The number of rows.

9.31.3.21 GetStride()

```
virtual unsigned int GetStride ( ) const  [virtual]
```

Get the stride in the image.

Returns

The stride (The number of bytes between rows of the image).

9.31.3.22 GetTimeStamp()

```
virtual TimeStamp GetTimeStamp ( ) const  [virtual]
```

Get the timestamp data associated with the image.

Returns

Timestamp data associated with the image.

9.31.3.23 operator()()

```
virtual unsigned char* operator() (
            unsigned int row,
            unsigned int col )  [virtual]
```

Indexing operator.

Parameters

row	The row of the pixel to return.
col	The column of the pixel to return.

Returns

The address of the specified byte from the image data.

9.31.3.24 operator=()

```
virtual Image& operator= (
            const Image & image )  [virtual]
```

Assignment operator.

Both images will point to the same image buffer internally. If the Image already has a buffer attached to it, it will will be released.

Parameters

image	The image to copy from.

9.31.3.25 operator[]()

```
virtual unsigned char* operator[] (
            unsigned int index )  [virtual]
```

Indexing operator.

Parameters

index	The index of the byte to return.

Returns

The address of the specified byte from the image data.

9.31.3.26 ReleaseBuffer()

```
virtual Error ReleaseBuffer ( )  [virtual]
```

Release the buffer associated with the Image.

If no buffer is associated, the function does nothing.

Returns

An Error indicating the success or failure of the function.

9.31.3.27 Save() [1/8]

```
virtual Error Save (
            const char * pFilename,
            ImageFileFormat format = FROM_FILE_EXT ) [virtual]
```

Save the image to the specified file name with the file format specified.

Parameters

pFilename	Filename to save image with.
format	File format to save in.

Returns

An Error indicating the success or failure of the function.

9.31.3.28 Save() [2/8]

```
virtual Error Save (
            const char * pFilename,
            PNGOption * pOption ) [virtual]
```

Save the image to the specified file name with the options specified.

Parameters

pFilename	Filename to save image with.
pOption	Options to use while saving image.

Returns

An Error indicating the success or failure of the function.

9.31.3.29 Save() [3/8]

```
virtual Error Save (
            const char * pFilename,
            PPMOption * pOption ) [virtual]
```

Save the image to the specified file name with the options specified.

Parameters

pFilename	Filename to save image with.
pOption	Options to use while saving image.

Returns

An Error indicating the success or failure of the function.

9.31.3.30 Save() [4/8]

```
virtual Error Save (
            const char * pFilename,
            PGMOption * pOption )  [virtual]
```

Save the image to the specified file name with the options specified.

Parameters

pFilename	Filename to save image with.
pOption	Options to use while saving image.

Returns

An Error indicating the success or failure of the function.

9.31.3.31 Save() [5/8]

```
virtual Error Save (
            const char * pFilename,
            TIFFOption * pOption )  [virtual]
```

Save the image to the specified file name with the options specified.

Parameters

pFilename	Filename to save image with.
pOption	Options to use while saving image.

Returns

An Error indicating the success or failure of the function.

9.31.3.32 Save() [6/8]

```
virtual Error Save (
            const char * pFilename,
            JPEGOption * pOption )  [virtual]
```

Save the image to the specified file name with the options specified.

Parameters

pFilename	Filename to save image with.
pOption	Options to use while saving image.

Returns

An Error indicating the success or failure of the function.

9.31.3.33 Save() [7/8]

```
virtual Error Save (
            const char * pFilename,
            JPG2Option * pOption ) [virtual]
```

Save the image to the specified file name with the options specified.

Parameters

pFilename	Filename to save image with.
pOption	Options to use while saving image.

Returns

An Error indicating the success or failure of the function.

9.31.3.34 Save() [8/8]

```
virtual Error Save (
            const char * pFilename,
            BMPOption * pOption ) [virtual]
```

Save the image to the specified file name with the options specified.

Parameters

pFilename	Filename to save image with.
pOption	Options to use while saving image.

Returns

An Error indicating the success or failure of the function.

9.31.3.35 SetBlockId()

```
virtual Error SetBlockId (
            const unsigned int blockId )  [virtual]
```

Set the block id of the Image object.

Parameters

block←↩ Id	The blockId to assign to the image.

9.31.3.36 SetColorProcessing()

```
virtual Error SetColorProcessing (
            ColorProcessingAlgorithm colorProc )  [virtual]
```

Set the color processing algorithm.

This should be set on the input Image object.

Parameters

colorProc	The color processing algorithm to use.

See also

GetColorProcessing()

Returns

An Error indicating the success or failure of the function.

9.31.3.37 SetData()

```
virtual Error SetData (
            const unsigned char * pData,
            unsigned int dataSize )  [virtual]
```

Set the data of the Image object.

Ownership of the image buffer is not transferred to the Image object. It is the user's responsibility to delete the buffer when it is no longer in use.

Parameters

pData	Pointer to the image buffer.
dataSize	Size of the image buffer.

9.31.3.38 SetDefaultColorProcessing()

```
static Error SetDefaultColorProcessing (
            ColorProcessingAlgorithm defaultMethod )  [static]
```

Set the default color processing algorithm.

This method will be used for any image with the DEFAULT algorithm set. The method used is determined at the time of the Convert() call, therefore the most recent execution of this function will take precedence. The default setting is shared within the current process.

Parameters

defaultMethod	The color processing algorithm to set.

See also

GetDefaultColorProcessing()

Returns

An Error indicating the success or failure of the function.

9.31.3.39 SetDefaultOutputFormat()

```
static Error SetDefaultOutputFormat (
            PixelFormat format )  [static]
```

Set the default output pixel format.

This format will be used for any call to Convert() that does not specify an output format. The format used will be determined at the time of the Convert() call, therefore the most recent execution of this function will take precedence. The default is shared within the current process.

Parameters

format	The output pixel format to set.

See also

GetDefaultOutputFormat()

Returns

The default color processing algorithm.

9.31.3.40 SetDimensions()

```
virtual Error SetDimensions (
             unsigned int rows,
             unsigned int cols,
             unsigned int stride,
             PixelFormat pixelFormat,
             BayerTileFormat bayerFormat )  [virtual]
```

Sets the dimensions of the image object.

Parameters

rows	Number of rows to set.
cols	Number of cols to set.
stride	Stride to set.
pixelFormat	Pixel format to set.
bayerFormat	Bayer tile format to set.

See also

GetDimensions()

Returns

An Error indicating the success or failure of the function.

9.31.4 Friends And Related Function Documentation

9.31.4.1 Iso

```
friend class Iso  [friend]
```

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

- Image.h

9.32 ImageMetadata Struct Reference

Metadata related to an image.

Public Member Functions

- ImageMetadata ()

Public Attributes

- unsigned int embeddedTimeStamp

  Embedded timestamp.
- unsigned int embeddedGain

  Embedded gain.
- unsigned int embeddedShutter

  Embedded shutter.
- unsigned int embeddedBrightness

  Embedded brightness.
- unsigned int embeddedExposure

  Embedded exposure.
- unsigned int embeddedWhiteBalance

  Embedded white balance.
- unsigned int embeddedFrameCounter

  Embedded frame counter.
- unsigned int embeddedStrobePattern

  Embedded strobe pattern.
- unsigned int embeddedGPIOPinState

  Embedded GPIO pin state.
- unsigned int embeddedROIPosition

  Embedded ROI position.
- unsigned int reserved [31]

  Reserved for future use.

9.32.1 Detailed Description

Metadata related to an image.

9.32.2 Constructor & Destructor Documentation

9.32.2.1 ImageMetadata()

```
ImageMetadata ( )  [inline]
```

9.32.3 Member Data Documentation

9.32.3.1 embeddedBrightness

```
unsigned int embeddedBrightness
```

Embedded brightness.

9.32.3.2 embeddedExposure

```
unsigned int embeddedExposure
```

Embedded exposure.

9.32.3.3 embeddedFrameCounter

```
unsigned int embeddedFrameCounter
```

Embedded frame counter.

9.32.3.4 embeddedGain

```
unsigned int embeddedGain
```

Embedded gain.

9.32.3.5 embeddedGPIOPinState

```
unsigned int embeddedGPIOPinState
```

Embedded GPIO pin state.

9.32.3.6 embeddedROIPosition

```
unsigned int embeddedROIPosition
```

Embedded ROI position.

9.32.3.7 embeddedShutter

```
unsigned int embeddedShutter
```

Embedded shutter.

9.32.3.8 embeddedStrobePattern

```
unsigned int embeddedStrobePattern
```

Embedded strobe pattern.

9.32.3.9 embeddedTimeStamp

```
unsigned int embeddedTimeStamp
```

Embedded timestamp.

9.32.3.10 embeddedWhiteBalance

```
unsigned int embeddedWhiteBalance
```

Embedded white balance.

9.32.3.11 reserved

```
unsigned int reserved[31]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.33 ImageStatistics Class Reference

The ImageStatistics object represents image statistics for an image.

Public Types

- enum StatisticsChannel {
  GREY,
  RED,
  GREEN,
  BLUE,
  HUE,
  SATURATION,
  LIGHTNESS,
  NUM_STATISTICS_CHANNELS }

  Channels that allow statistics to be calculated.

Public Member Functions

- ImageStatistics ()

  Default constructor.
- virtual ∼ImageStatistics ()

  Default destructor.
- ImageStatistics (const ImageStatistics &other)

  Copy constructor.
- ImageStatistics & operator= (const ImageStatistics &other)

  Assignment operator.
- Error EnableAll ()

  Enable all channels.
- Error DisableAll ()

  Disable all channels.
- Error EnableGreyOnly ()

  Enable only the grey channel.
- Error EnableRGBOnly ()

  Enable only the RGB channels.
- Error EnableHSLOnly ()

  Enable only the HSL channels.
- Error GetChannelStatus (StatisticsChannel channel, bool ∗pEnabled) const

  Get the status of a statistics channel.
- Error SetChannelStatus (StatisticsChannel channel, bool enabled)

  Set the status of a statistics channel.
- Error GetRange (StatisticsChannel channel, unsigned int ∗pMin, unsigned int ∗pMax) const

  Get the range of a statistics channel.
- Error GetPixelValueRange (StatisticsChannel channel, unsigned int ∗pPixelValueMin, unsigned int ∗pPixel←ValueMax) const

  Get the range of a statistics channel.
- Error GetNumPixelValues (StatisticsChannel channel, unsigned int ∗pNumPixelValues) const

  Get the number of unique pixel values in the image.
- Error GetMean (StatisticsChannel channel, float ∗pPixelValueMean) const

  Get the mean of the image.

- Error GetHistogram (StatisticsChannel channel, int ∗∗ppHistogram) const

  Get the histogram for the image.
- Error GetStatistics (StatisticsChannel channel, unsigned int ∗pRangeMin=NULL, unsigned int ∗pRange←Max=NULL, unsigned int ∗pPixelValueMin=NULL, unsigned int ∗pPixelValueMax=NULL, unsigned int ∗p←NumPixelValues=NULL, float ∗pPixelValueMean=NULL, int ∗∗ppHistogram=NULL) const

  Get all statistics for the image.

Friends

- class ImageStatsCalculator

9.33.1 Detailed Description

The ImageStatistics object represents image statistics for an image.

9.33.2 Member Enumeration Documentation

9.33.2.1 StatisticsChannel

```
enum StatisticsChannel
```

Channels that allow statistics to be calculated.

Enumerator

GREY	
RED	
GREEN	
BLUE	
HUE	
SATURATION	
LIGHTNESS	
NUM_STATISTICS_CHANNELS	

9.33.3 Constructor & Destructor Documentation

9.33.3.1 ImageStatistics() [1/2]

```
ImageStatistics ( )
```

Default constructor.

9.33.3.2 ∼ImageStatistics()

```
virtual ∼ImageStatistics ( )  [virtual]
```

Default destructor.

9.33.3.3 ImageStatistics() [2/2]

```
ImageStatistics (
             const ImageStatistics & other )
```

Copy constructor.

9.33.4 Member Function Documentation

9.33.4.1 DisableAll()

```
Error DisableAll ( )
```

Disable all channels.

Returns

An Error indicating the success or failure of the function.

9.33.4.2 EnableAll()

```
Error EnableAll ( )
```

Enable all channels.

Returns

An Error indicating the success or failure of the function.

9.33.4.3 EnableGreyOnly()

```
Error EnableGreyOnly ( )
```

Enable only the grey channel.

Returns

An Error indicating the success or failure of the function.

9.33.4.4 EnableHSLOnly()

```
Error EnableHSLOnly ( )
```

Enable only the HSL channels.

Returns

An Error indicating the success or failure of the function.

9.33.4.5 EnableRGBOnly()

```
Error EnableRGBOnly ( )
```

Enable only the RGB channels.

Returns

An Error indicating the success or failure of the function.

9.33.4.6 GetChannelStatus()

```
Error GetChannelStatus (
            StatisticsChannel channel,
            bool * pEnabled ) const
```

Get the status of a statistics channel.

Parameters

channel	The statistics channel.
pEnabled	Whether the channel is enabled.

See also

SetChannelStatus()

Returns

An Error indicating the success or failure of the function.

9.33.4.7 GetHistogram()

```
Error GetHistogram (
            StatisticsChannel channel,
            int ** ppHistogram ) const
```

Get the histogram for the image.

Parameters

channel	The statistics channel.
ppHistogram	Pointer to an array containing the histogram.

Returns

An Error indicating the success or failure of the function.

9.33.4.8 GetMean()

```
Error GetMean (
            StatisticsChannel channel,
            float * pPixelValueMean ) const
```

Get the mean of the image.

Parameters

channel	The statistics channel.
pPixelValueMean	The mean of the image.

Returns

An Error indicating the success or failure of the function.

9.33.4.9 GetNumPixelValues()

```
Error GetNumPixelValues (
            StatisticsChannel channel,
            unsigned int * pNumPixelValues ) const
```

Get the number of unique pixel values in the image.

Parameters

channel	The statistics channel.
pNumPixelValues	The number of unique pixel values.

Returns

An Error indicating the success or failure of the function.

9.33.4.10 GetPixelValueRange()

```
Error GetPixelValueRange (
            StatisticsChannel channel,
            unsigned int * pPixelValueMin,
            unsigned int * pPixelValueMax ) const
```

Get the range of a statistics channel.

The values returned are the maximum values recorded for all pixels in the image.

Parameters

channel	The statistics channel.
pPixelValueMin	The minimum pixel value.
pPixelValueMax	The maximum pixel value.

Returns

An Error indicating the success or failure of the function.

9.33.4.11 GetRange()

```
Error GetRange (
            StatisticsChannel channel,
            unsigned int * pMin,
            unsigned int * pMax ) const
```

Get the range of a statistics channel.

The values returned are the maximum possible values for any given pixel in the image. This is generally 0-255 for 8 bit images, and 0-65535 for 16 bit images.

Parameters

channel	The statistics channel.
pMin	The minimum possible value.
pMax	The maximum possible value.

Returns

An Error indicating the success or failure of the function.

9.33.4.12 GetStatistics()

```
Error GetStatistics (
            StatisticsChannel channel,
            unsigned int * pRangeMin = NULL,
            unsigned int * pRangeMax = NULL,
            unsigned int * pPixelValueMin = NULL,
            unsigned int * pPixelValueMax = NULL,
            unsigned int * pNumPixelValues = NULL,
            float * pPixelValueMean = NULL,
            int ** ppHistogram = NULL ) const
```

Get all statistics for the image.

Parameters

channel	The statistics channel.
pRangeMin	The minimum possible value.
pRangeMax	The maximum possible value.
pPixelValueMin	The minimum pixel value.
pPixelValueMax	The maximum pixel value.
pNumPixelValues	The number of unique pixel values.
pPixelValueMean	The mean of the image.
ppHistogram	Pointer to an array containing the histogram.

Returns

An Error indicating the success or failure of the function.

9.33.4.13 operator=()

```
ImageStatistics& operator= (
            const ImageStatistics & other )
```

Assignment operator.

Parameters

other	The ImageStatistics object to copy from.

9.33.4.14 SetChannelStatus()

```
Error SetChannelStatus (
            StatisticsChannel channel,
            bool enabled )
```

Set the status of a statistics channel.

Parameters

channel	The statistics channel.
enabled	Whether the channel should be enabled.

See also

GetChannelStatus()

Returns

An Error indicating the success or failure of the function.

9.33.5 Friends And Related Function Documentation

9.33.5.1 ImageStatsCalculator

```
friend class ImageStatsCalculator  [friend]
```

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

- ImageStatistics.h

9.34 Internal Class Reference

Static Public Member Functions

- static void ∗ GetInternal (unsigned int index)

9.34.1 Member Function Documentation

9.34.1.1 GetInternal()

```
static void* GetInternal (
             unsigned int index )  [static]
```

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

- Internal.h

9.35 IPAddress Struct Reference

IPv4 address.

Public Member Functions

- IPAddress ()
- IPAddress (unsigned int ipAddressVal)
- bool operator== (const IPAddress &address) const

  Equality operator.
- bool operator!= (const IPAddress &address)

  Inequality operator.

Public Attributes

- unsigned char octets [4]

9.35.1 Detailed Description

IPv4 address.

9.35.2 Constructor & Destructor Documentation

9.35.2.1 IPAddress() [1/2]

```
IPAddress ( )  [inline]
```

9.35.2.2 IPAddress() [2/2]

```
IPAddress (
            unsigned int ipAddressVal )  [inline]
```

9.35.3 Member Function Documentation

9.35.3.1 operator"!=()

```
bool operator!= (
            const IPAddress & address )  [inline]
```

Inequality operator.

9.35.3.2 operator==()

```
bool operator== (
            const IPAddress & address ) const  [inline]
```

Equality operator.

9.35.4 Member Data Documentation

9.35.4.1 octets

```
unsigned char octets[4]
```

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

- FlyCapture2Defs.h

9.36 JPEGOption Struct Reference

Options for saving JPEG image.

Public Member Functions

- JPEGOption ()

Public Attributes

- bool progressive

  Whether to save as a progressive JPEG file.
- unsigned int quality

  JPEG image quality in range (0-100).
- unsigned int reserved [16]

  Reserved for future use.

9.36.1 Detailed Description

Options for saving JPEG image.

9.36.2 Constructor & Destructor Documentation

9.36.2.1 JPEGOption()

```
JPEGOption ( )  [inline]
```

9.36.3 Member Data Documentation

9.36.3.1 progressive

```
bool progressive
```

Whether to save as a progressive JPEG file.

9.36.3.2 quality

```
unsigned int quality
```

JPEG image quality in range (0-100).

- 100 - Superb quality.
- 75 - Good quality.
- 50 - Normal quality.
- 10 - Poor quality.

9.36.3.3 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.37 JPG2Option Struct Reference

Options for saving JPEG2000 image.

Public Member Functions

- JPG2Option ()

Public Attributes

- unsigned int quality

  JPEG saving quality in range (1-512).
- unsigned int reserved [16]

  Reserved for future use.

9.37.1 Detailed Description

Options for saving JPEG2000 image.

9.37.2 Constructor & Destructor Documentation

9.37.2.1 JPG2Option()

```
JPG2Option ( )  [inline]
```

9.37.3 Member Data Documentation

9.37.3.1 quality

```
unsigned int quality
```

JPEG saving quality in range (1-512).

9.37.3.2 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.38 LUTData Struct Reference

Information about the camera's look up table.

Public Member Functions

- LUTData ()

Public Attributes

- bool supported

  Flag indicating if LUT is supported.
- bool enabled

  Flag indicating if LUT is enabled.
- unsigned int numBanks

  The number of LUT banks available (Always 1 for PGR LUT).
- unsigned int numChannels

  The number of LUT channels per bank available.
- unsigned int inputBitDepth

  The input bit depth of the LUT.
- unsigned int outputBitDepth

  The output bit depth of the LUT.
- unsigned int numEntries

  The number of entries in the LUT.
- unsigned int reserved [8]

  Reserved for future use.

9.38.1 Detailed Description

Information about the camera's look up table.

9.38.2 Constructor & Destructor Documentation

9.38.2.1 LUTData()

```
LUTData ( )  [inline]
```

9.38.3 Member Data Documentation

9.38.3.1 enabled

```
bool enabled
```

Flag indicating if LUT is enabled.

9.38.3.2 inputBitDepth

```
unsigned int inputBitDepth
```

The input bit depth of the LUT.

9.38.3.3 numBanks

```
unsigned int numBanks
```

The number of LUT banks available (Always 1 for PGR LUT).

9.38.3.4 numChannels

```
unsigned int numChannels
```

The number of LUT channels per bank available.

9.38.3.5 numEntries

```
unsigned int numEntries
```

The number of entries in the LUT.

9.38.3.6 outputBitDepth

```
unsigned int outputBitDepth
```

The output bit depth of the LUT.

9.38.3.7 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.38.3.8 supported

```
bool supported
```

Flag indicating if LUT is supported.

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

- FlyCapture2Defs.h

9.39 MACAddress Struct Reference

MAC address.

Public Member Functions

- MACAddress ()
- MACAddress (unsigned int macAddressValHigh, unsigned int macAddressValLow)
- bool operator== (const MACAddress &address) const

  Equality operator.
- bool operator!= (const MACAddress &address)

  Inequality operator.

Public Attributes

- unsigned char octets [6]

9.39.1 Detailed Description

MAC address.

9.39.2 Constructor & Destructor Documentation

9.39.2.1 MACAddress() [1/2]

```
MACAddress ( )  [inline]
```

9.39.2.2 MACAddress() [2/2]

```
MACAddress (
             unsigned int macAddressValHigh,
             unsigned int macAddressValLow )  [inline]
```

9.39.3 Member Function Documentation

9.39.3.1 operator"!=()

```
bool operator!= (
             const MACAddress & address )  [inline]
```

Inequality operator.

9.39.3.2 operator==()

```
bool operator== (
             const MACAddress & address ) const  [inline]
```

Equality operator.

9.39.4 Member Data Documentation

9.39.4.1 octets

```
unsigned char octets[6]
```

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

- FlyCapture2Defs.h

9.40 MJPGOption Struct Reference

Options for saving MJPG files.

Public Member Functions

- MJPGOption ()

Public Attributes

- float frameRate

  Frame rate of the stream.
- unsigned int quality

  Image quality (1-100)
- unsigned int reserved [256]

9.40.1 Detailed Description

Options for saving MJPG files.

9.40.2 Constructor & Destructor Documentation

9.40.2.1 MJPGOption()

```
MJPGOption ( )  [inline]
```

9.40.3 Member Data Documentation

9.40.3.1 frameRate

```
float frameRate
```

Frame rate of the stream.

9.40.3.2 quality

```
unsigned int quality
```

Image quality (1-100)

9.40.3.3 reserved

```
unsigned int reserved[256]
```

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

- FlyCapture2VideoDefs.h

9.41 NodeMap Class Reference

Public Member Functions

- NodeMap (GenApi::CNodeMapRef ∗ref)
- virtual ∼NodeMap (void)
- GenICam::gcstring _GetDeviceName ()

    Get device name.
- void _Poll (int64_t ElapsedTime)

    Fires nodes which have a polling time.
- void _GetNodes (NodeList_t &Nodes)

    Retrieves all nodes in the node map.
- INode ∗ _GetNode (const GenICam::gcstring &key)

    Retrieves the node from the central map by name.
- void _InvalidateNodes () const

    Invalidates all nodes.

9.41.1 Constructor & Destructor Documentation

9.41.1.1 NodeMap()

```
NodeMap (
             GenApi::CNodeMapRef * ref )
```

9.41.1.2 ∼NodeMap()

```
virtual ∼NodeMap (
             void  )  [virtual]
```

9.41.2 Member Function Documentation

9.41.2.1 _GetDeviceName()

```
GenICam::gcstring _GetDeviceName ( )
```

Get device name.

9.41.2.2 _GetNode()

```
INode* _GetNode (
             const GenICam::gcstring & key )
```

Retrieves the node from the central map by name.

9.41.2.3 _GetNodes()

```
void _GetNodes (
             NodeList_t & Nodes )
```

Retrieves all nodes in the node map.

9.41.2.4 _InvalidateNodes()

```
void _InvalidateNodes ( ) const
```

Invalidates all nodes.

9.41.2.5 _Poll()

```
void _Poll (
            int64_t ElapsedTime )
```

Fires nodes which have a polling time.

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

- NodeMap.h

9.42 PGMOption Struct Reference

Options for saving PGM images.

Public Member Functions

- PGMOption ()

Public Attributes

- bool binaryFile
  Whether to save the PPM as a binary file.
- unsigned int reserved [16]
  Reserved for future use.

9.42.1 Detailed Description

Options for saving PGM images.

9.42.2 Constructor & Destructor Documentation

9.42.2.1 PGMOption()

```
PGMOption ( )  [inline]
```

9.42.3 Member Data Documentation

9.42.3.1 binaryFile

```
bool binaryFile
```

Whether to save the PPM as a binary file.

9.42.3.2 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.43 PGRGuid Class Reference

A GUID to the camera.

Public Member Functions

- PGRGuid ()
  Constructor.
- bool operator== (const PGRGuid &guid) const
  Equality operator.
- bool operator!= (const PGRGuid &guid)
  Inequality operator.

Public Attributes

- unsigned int value [4]

9.43.1 Detailed Description

A GUID to the camera.

It is used to uniquely identify a camera.

9.43.2 Constructor & Destructor Documentation

9.43.2.1 PGRGuid()

```
PGRGuid ( )  [inline]
```

Constructor.

9.43.3 Member Function Documentation

9.43.3.1 operator"!=()

```
bool operator!= (
             const PGRGuid & guid )  [inline]
```

Inequality operator.

9.43.3.2 operator==()

```
bool operator== (
             const PGRGuid & guid ) const  [inline]
```

Equality operator.

9.43.4 Member Data Documentation

9.43.4.1 value

```
unsigned int value[4]
```

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

- FlyCapture2Defs.h

9.44 PNGOption Struct Reference

Options for saving PNG images.

Public Member Functions

- PNGOption ()

Public Attributes

- bool interlaced

    Whether to save the PNG as interlaced.
- unsigned int compressionLevel

    Compression level (0-9).
- unsigned int reserved [16]

    Reserved for future use.

9.44.1 Detailed Description

Options for saving PNG images.

9.44.2 Constructor & Destructor Documentation

9.44.2.1 PNGOption()

```
PNGOption ( )  [inline]
```

9.44.3 Member Data Documentation

9.44.3.1 compressionLevel

```
unsigned int compressionLevel
```

Compression level (0-9).

0 is no compression, 9 is best compression.

9.44.3.2 interlaced

```
bool interlaced
```

Whether to save the PNG as interlaced.

9.44.3.3 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.45 PPMOption Struct Reference

Options for saving PPM images.

Public Member Functions

- PPMOption ()

Public Attributes

- bool binaryFile

  Whether to save the PPM as a binary file.
- unsigned int reserved [16]

  Reserved for future use.

9.45.1 Detailed Description

Options for saving PPM images.

9.45.2 Constructor & Destructor Documentation

9.45.2.1 PPMOption()

```
PPMOption ( )  [inline]
```

9.45.3 Member Data Documentation

9.45.3.1 binaryFile

```
bool binaryFile
```

Whether to save the PPM as a binary file.

9.45.3.2 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.46 Property Struct Reference

A specific camera property.

Public Member Functions

- Property ()
- Property (PropertyType propType)

Public Attributes

- PropertyType type

  Property info type.
- bool present

  Flag indicating if the property is present.
- bool absControl

  Flag controlling absolute mode (real world units) or non-absolute mode (camera internal units).
- bool onePush

  Flag controlling one push.
- bool onOff

  Flag controlling on/off.
- bool autoManualMode

  Flag controlling auto.
- unsigned int valueA

  Value A (integer).
- unsigned int valueB

  Value B (integer).
- float absValue

  Floating point value.
- unsigned int reserved [8]

  Reserved for future use.

9.46.1 Detailed Description

A specific camera property.

For example, to set the gain to 12dB, set the following values:

- *type* - `GAIN`
- *absControl* - `true`
- *onePush* - `false`
- *onOff* - `true`
- *autoManualMode* - `false`
- *absValue* - `12.0`

9.46.2 Constructor & Destructor Documentation

9.46.2.1 Property() [1/2]

```
Property ( )  [inline]
```

9.46.2.2 Property() [2/2]

```
Property (
            PropertyType propType )  [inline]
```

9.46.3 Member Data Documentation

9.46.3.1 absControl

```
bool absControl
```

Flag controlling absolute mode (real world units) or non-absolute mode (camera internal units).

9.46.3.2 absValue

```
float absValue
```

Floating point value.

Used to configure properties in absolute mode.

9.46.3.3 autoManualMode

```
bool autoManualMode
```

Flag controlling auto.

9.46.3.4 onePush

```
bool onePush
```

Flag controlling one push.

9.46.3.5 onOff

```
bool onOff
```

Flag controlling on/off.

9.46.3.6 present

```
bool present
```

Flag indicating if the property is present.

9.46.3.7 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.46.3.8 type

```
PropertyType type
```

Property info type.

9.46.3.9 valueA

```
unsigned int valueA
```

Value A (integer).

Used to configure properties in non-absolute mode.

9.46.3.10 valueB

```
unsigned int valueB
```

Value B (integer).

For white balance, value B applies to the blue value and value A applies to the red value.

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

- FlyCapture2Defs.h

9.47 PropertyInfo Struct Reference

Information about a specific camera property.

Public Member Functions

- PropertyInfo ()
- PropertyInfo (PropertyType propType)

Public Attributes

- PropertyType type

  Property info type.
- bool present

  Flag indicating if the property is present.
- bool autoSupported

  Flag indicating if auto is supported.
- bool manualSupported

  Flag indicating if manual is supported.
- bool onOffSupported

  Flag indicating if on/off is supported.
- bool onePushSupported

  Flag indicating if one push is supported.
- bool absValSupported

  Flag indicating if absolute mode is supported.
- bool readOutSupported

  Flag indicating if property value can be read out.
- unsigned int min

  Minimum value (as an integer).
- unsigned int max

  Maximum value (as an integer).
- float absMin

  Minimum value (as a floating point value).
- float absMax

  Maximum value (as a floating point value).
- char pUnits [sk_maxStringLength]

  Textual description of units.
- char pUnitAbbr [sk_maxStringLength]

  Abbreviated textual description of units.
- unsigned int reserved [8]

  Reserved for future use.

9.47.1 Detailed Description

Information about a specific camera property.

This structure is also also used as the TriggerDelayInfo structure.

9.47.2 Constructor & Destructor Documentation

9.47.2.1 PropertyInfo() [1/2]

```
PropertyInfo ( )  [inline]
```

9.47.2.2 PropertyInfo() [2/2]

```
PropertyInfo (
             PropertyType propType )  [inline]
```

9.47.3 Member Data Documentation

9.47.3.1 absMax

```
float absMax
```

Maximum value (as a floating point value).

9.47.3.2 absMin

```
float absMin
```

Minimum value (as a floating point value).

9.47.3.3 absValSupported

```
bool absValSupported
```

Flag indicating if absolute mode is supported.

9.47.3.4 autoSupported

```
bool autoSupported
```

Flag indicating if auto is supported.

9.47.3.5 manualSupported

```
bool manualSupported
```

Flag indicating if manual is supported.

9.47.3.6 max

```
unsigned int max
```

Maximum value (as an integer).

9.47.3.7 min

```
unsigned int min
```

Minimum value (as an integer).

9.47.3.8 onePushSupported

```
bool onePushSupported
```

Flag indicating if one push is supported.

9.47.3.9 onOffSupported

```
bool onOffSupported
```

Flag indicating if on/off is supported.

9.47.3.10 present

```
bool present
```

Flag indicating if the property is present.

9.47.3.11 pUnitAbbr

```
char pUnitAbbr[sk_maxStringLength]
```

Abbreviated textual description of units.

9.47.3.12 pUnits

```
char pUnits[sk_maxStringLength]
```

Textual description of units.

9.47.3.13 readOutSupported

```
bool readOutSupported
```

Flag indicating if property value can be read out.

9.47.3.14 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.47.3.15 type

```
PropertyType type
```

Property info type.

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

- FlyCapture2Defs.h

9.48 StrobeControl Struct Reference

A camera strobe.

Public Member Functions

- StrobeControl ()

Public Attributes

- unsigned int source

  Source value.
- bool onOff

  Flag controlling on/off.
- unsigned int polarity

  Signal polarity.
- float delay

  Signal delay (in ms).
- float duration

  Signal duration (in ms).
- unsigned int reserved [8]

  Reserved for future use.

9.48.1 Detailed Description

A camera strobe.

9.48.2 Constructor & Destructor Documentation

9.48.2.1 StrobeControl()

```
StrobeControl ( )  [inline]
```

9.48.3 Member Data Documentation

9.48.3.1 delay

```
float delay
```

Signal delay (in ms).

9.48.3.2 duration

```
float duration
```

Signal duration (in ms).

9.48.3.3 onOff

```
bool onOff
```

Flag controlling on/off.

9.48.3.4 polarity

```
unsigned int polarity
```

Signal polarity.

9.48.3.5 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.48.3.6 source

```
unsigned int source
```

Source value.

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

- FlyCapture2Defs.h

9.49 StrobeInfo Struct Reference

A camera strobe property.

Public Member Functions

- StrobeInfo ()

Public Attributes

- unsigned int source

  Source value.
- bool present

  Presence of strobe.
- bool readOutSupported

  Flag indicating if strobe value can be read out.
- bool onOffSupported

  Flag indicating if on/off is supported.
- bool polaritySupported

  Flag indicating if polarity is supported.
- float minValue

  Minimum value.
- float maxValue

  Maximum value.
- unsigned int reserved [8]

  Reserved for future use.

9.49.1 Detailed Description

A camera strobe property.

9.49.2 Constructor & Destructor Documentation

9.49.2.1 StrobeInfo()

```
StrobeInfo ( )  [inline]
```

9.49.3 Member Data Documentation

9.49.3.1 maxValue

```
float maxValue
```

Maximum value.

9.49.3.2 minValue

```
float minValue
```

Minimum value.

9.49.3.3 onOffSupported

```
bool onOffSupported
```

Flag indicating if on/off is supported.

9.49.3.4 polaritySupported

```
bool polaritySupported
```

Flag indicating if polarity is supported.

9.49.3.5 present

```
bool present
```

Presence of strobe.

9.49.3.6 readOutSupported

```
bool readOutSupported
```

Flag indicating if strobe value can be read out.

9.49.3.7 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.49.3.8 source

```
unsigned int source
```

Source value.

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

- FlyCapture2Defs.h

9.50 SyncManager Class Reference

Public Member Functions

- MULTISYNCLIBRARY_API SyncManager ()
- MULTISYNCLIBRARY_API ∼SyncManager ()
- MULTISYNCLIBRARY_API PGRSyncError Start ()
- MULTISYNCLIBRARY_API PGRSyncError Stop ()
- MULTISYNCLIBRARY_API PGRSyncError RescanMasterTimingBus ()
- MULTISYNCLIBRARY_API PGRSyncMessage GetSyncStatus ()
- MULTISYNCLIBRARY_API double GetTimeSinceSynced ()
- MULTISYNCLIBRARY_API bool IsTimingBusConnected ()
- MULTISYNCLIBRARY_API bool EnableCrossPCSynchronization ()
- MULTISYNCLIBRARY_API bool DisableCrossPCSynchronization ()
- MULTISYNCLIBRARY_API bool QueryCrossPCSynchronizationSetting ()

9.50.1 Constructor & Destructor Documentation

9.50.1.1 SyncManager()

```
MULTISYNCLIBRARY_API SyncManager ( )
```

9.50.1.2 ∼SyncManager()

```
MULTISYNCLIBRARY_API ∼SyncManager ( )
```

9.50.2 Member Function Documentation

9.50.2.1 DisableCrossPCSynchronization()

```
MULTISYNCLIBRARY_API bool DisableCrossPCSynchronization ( )
```

9.50.2.2 EnableCrossPCSynchronization()

```
MULTISYNCLIBRARY_API bool EnableCrossPCSynchronization ( )
```

9.50.2.3 GetSyncStatus()

```
MULTISYNCLIBRARY_API PGRSyncMessage GetSyncStatus ( )
```

9.50.2.4 GetTimeSinceSynced()

```
MULTISYNCLIBRARY_API double GetTimeSinceSynced ( )
```

9.50.2.5 IsTimingBusConnected()

```
MULTISYNCLIBRARY_API bool IsTimingBusConnected ( )
```

9.50.2.6 QueryCrossPCSynchronizationSetting()

```
MULTISYNCLIBRARY_API bool QueryCrossPCSynchronizationSetting ( )
```

9.50.2.7 RescanMasterTimingBus()

```
MULTISYNCLIBRARY_API PGRSyncError RescanMasterTimingBus ( )
```

9.50.2.8 Start()

```
MULTISYNCLIBRARY_API PGRSyncError Start ( )
```

9.50.2.9 Stop()

```
MULTISYNCLIBRARY_API PGRSyncError Stop ( )
```

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

- MultiSyncLibraryDefs.h

9.51 SystemInfo Struct Reference

Description of the system.

Public Attributes

- OSType osType
  Operating system type as described by OSType.
- char osDescription [sk_maxStringLength]
  Detailed description of the operating system.
- ByteOrder byteOrder
  Byte order of the system.
- size_t sysMemSize
  Amount of memory available on the system.
- char cpuDescription [sk_maxStringLength]
  Detailed description of the CPU.
- size_t numCpuCores
  Number of cores on all CPUs on the system.
- char driverList [sk_maxStringLength]
  List of drivers used.
- char libraryList [sk_maxStringLength]
  List of libraries used.
- char gpuDescription [sk_maxStringLength]
  Detailed description of the GPU.
- size_t screenWidth
  Screen resolution width in pixels.
- size_t screenHeight
  Screen resolution height in pixels.
- unsigned int reserved [16]
  Reserved for future use.

9.51.1 Detailed Description

Description of the system.

9.51.2 Member Data Documentation

9.51.2.1 byteOrder

```
ByteOrder byteOrder
```

Byte order of the system.

9.51.2.2 cpuDescription

```
char cpuDescription[sk_maxStringLength]
```

Detailed description of the CPU.

9.51.2.3 driverList

```
char driverList[sk_maxStringLength]
```

List of drivers used.

9.51.2.4 gpuDescription

```
char gpuDescription[sk_maxStringLength]
```

Detailed description of the GPU.

9.51.2.5 libraryList

```
char libraryList[sk_maxStringLength]
```

List of libraries used.

9.51.2.6 numCpuCores

```
size_t numCpuCores
```

Number of cores on all CPUs on the system.

9.51.2.7 osDescription

```
char osDescription[sk_maxStringLength]
```

Detailed description of the operating system.

9.51.2.8 osType

```
OSType osType
```

Operating system type as described by OSType.

9.51.2.9 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

9.51.2.10 screenHeight

```
size_t screenHeight
```

Screen resolution height in pixels.

9.51.2.11 screenWidth

```
size_t screenWidth
```

Screen resolution width in pixels.

9.51.2.12 sysMemSize

```
size_t sysMemSize
```

Amount of memory available on the system.

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

- Utilities.h

9.52 TIFFOption Struct Reference

Options for saving TIFF images.

Public Types

- enum CompressionMethod {
  NONE = 1,
  PACKBITS,
  DEFLATE,
  ADOBE_DEFLATE,
  CCITTFAX3,
  CCITTFAX4,
  LZW,
  JPEG }

Public Member Functions

- TIFFOption ()

Public Attributes

- CompressionMethod compression

  Compression method to use for encoding TIFF images.
- unsigned int reserved [16]

  Reserved for future use.

9.52.1 Detailed Description

Options for saving TIFF images.

9.52.2 Member Enumeration Documentation

9.52.2.1 CompressionMethod

```
enum CompressionMethod
```

Enumerator

NONE	Save without any compression.
PACKBITS	Save using PACKBITS compression.
DEFLATE	Save using DEFLATE compression (ZLIB compression).
ADOBE_DEFLATE	Save using ADOBE DEFLATE compression.
CCITTFAX3	Save using CCITT Group 3 fax encoding. This is only valid for 1-bit images only. Default to LZW for other bit depths.
CCITTFAX4	Save using CCITT Group 4 fax encoding. This is only valid for 1-bit images only. Default to LZW for other bit depths.
LZW	Save using LZW compression.
JPEG	Save using JPEG compression. This is only valid for 8-bit greyscale and 24-bit only.

9.52.3 Constructor & Destructor Documentation

9.52.3.1 TIFFOption()

```
TIFFOption ( )  [inline]
```

9.52.4 Member Data Documentation

9.52.4.1 compression

```
CompressionMethod compression
```

Compression method to use for encoding TIFF images.

9.52.4.2 reserved

```
unsigned int reserved[16]
```

Reserved for future use.

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

- FlyCapture2Defs.h

9.53 TimeStamp Struct Reference

Timestamp information.

Public Member Functions

- TimeStamp ()

Public Attributes

- long long seconds

    Seconds.
- unsigned int microSeconds

    Microseconds.
- unsigned int cycleSeconds

    1394 cycle time seconds.
- unsigned int cycleCount

    1394 cycle time count.
- unsigned int cycleOffset

    1394 cycle time offset.
- unsigned int reserved [8]

    Reserved for future use.

9.53.1 Detailed Description

Timestamp information.

9.53.2 Constructor & Destructor Documentation

9.53.2.1 TimeStamp()

```
TimeStamp ( )  [inline]
```

9.53.3 Member Data Documentation

9.53.3.1 cycleCount

```
unsigned int cycleCount
```

1394 cycle time count.

9.53.3.2 cycleOffset

```
unsigned int cycleOffset
```

1394 cycle time offset.

9.53.3.3 cycleSeconds

```
unsigned int cycleSeconds
```

1394 cycle time seconds.

9.53.3.4 microSeconds

```
unsigned int microSeconds
```

Microseconds.

9.53.3.5 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.53.3.6 seconds

```
long long seconds
```

Seconds.

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

- FlyCapture2Defs.h

9.54 TopologyNode Class Reference

The TopologyNode class contains topology information that can be used to generate a tree structure of all cameras and devices connected to a computer.

Public Types

- enum PortType {
  NOT_CONNECTED = 1,
  CONNECTED_TO_PARENT,
  CONNECTED_TO_CHILD }

  Possible states of a port on a node.
- enum NodeType {
  COMPUTER,
  BUS,
  CAMERA,
  NODE }

  Type of node.

Public Member Functions

- TopologyNode ()

  Default constructor.
- TopologyNode (PGRGuid guid, int deviceId, NodeType nodeType, InterfaceType interfaceType)

  Constructor.
- virtual ∼TopologyNode ()

  Default destructor.
- TopologyNode (const TopologyNode &other)

  Copy constructor.
- virtual TopologyNode & operator= (const TopologyNode &other)

  Assignment operator.
- virtual PGRGuid GetGuid ()

  Get the PGRGuid associated with the node.
- virtual int GetDeviceId ()

  Get the device ID associated with the node.
- virtual NodeType GetNodeType ()

  Get the node type associated with the node.
- virtual InterfaceType GetInterfaceType ()

  Get the interface type associated with the node.
- virtual unsigned int GetNumChildren ()

  Get the number of child nodes.
- virtual TopologyNode GetChild (unsigned int position)

  Get child node located at the specified position.
- virtual void AddChild (TopologyNode childNode)

  Add the specified TopologyNode as a child of the node.
- virtual unsigned int GetNumPorts ()

  Get the number of ports.
- virtual PortType GetPortType (unsigned int position)

  Get type of port located at the specified position.
- virtual void AddPortType (PortType childPort)

  Add the specified PortType as a port of the node.
- virtual bool AssignGuidToNode (PGRGuid guid, int deviceId)

  Assign a PGRGuid and device ID to the node.
- virtual bool AssignGuidToNode (PGRGuid guid, int deviceId, NodeType nodeType)

  Assign a PGRGuid, device ID and nodeType to the node.

9.54.1 Detailed Description

The TopologyNode class contains topology information that can be used to generate a tree structure of all cameras and devices connected to a computer.

9.54.2 Member Enumeration Documentation

9.54.2.1 NodeType

```
enum NodeType
```

Type of node.

Enumerator

COMPUTER	
BUS	
CAMERA	
NODE	

9.54.2.2 PortType

```
enum PortType
```

Possible states of a port on a node.

Enumerator

NOT_CONNECTED	
CONNECTED_TO_PARENT	
CONNECTED_TO_CHILD	

9.54.3 Constructor & Destructor Documentation

9.54.3.1 TopologyNode() [1/3]

```
TopologyNode ( )
```

Default constructor.

9.54.3.2 TopologyNode() [2/3]

```
TopologyNode (
              PGRGuid guid,
              int deviceId,
              NodeType nodeType,
              InterfaceType interfaceType )
```

Constructor.

Parameters

guid	The PGRGuid of the node (if applicable).
deviceId	Device ID of the node.
nodeType	Type of the node.
interfaceType	Interface type of the node.

9.54.3.3 ∼TopologyNode()

```
virtual ~TopologyNode ( )  [virtual]
```

Default destructor.

9.54.3.4 TopologyNode() [3/3]

```
TopologyNode (
            const TopologyNode & other )
```

Copy constructor.

9.54.4 Member Function Documentation

9.54.4.1 AddChild()

```
virtual void AddChild (
            TopologyNode childNode )  [virtual]
```

Add the specified TopologyNode as a child of the node.

Parameters

childNode	The TopologyNode to add.

9.54.4.2 AddPortType()

```
virtual void AddPortType (
            PortType childPort )  [virtual]
```

Add the specified PortType as a port of the node.

Parameters

childPort	The port to add.

9.54.4.3 AssignGuidToNode() [1/2]

```
virtual bool AssignGuidToNode (
            PGRGuid guid,
            int deviceId )  [virtual]
```

Assign a PGRGuid and device ID to the node.

Parameters

guid	PGRGuid to be assigned.
device↩ Id	Device ID to be assigned.

Returns

Whether the data was successfully set to the node.

9.54.4.4 AssignGuidToNode() [2/2]

```
virtual bool AssignGuidToNode (
            PGRGuid guid,
            int deviceId,
            NodeType nodeType )  [virtual]
```

Assign a PGRGuid, device ID and nodeType to the node.

Parameters

guid	PGRGuid to be assigned.
deviceId	Device ID to be assigned.
nodeType	NodeType to be assigned

Returns

Whether the data was successfully set to the node.

9.54.4.5 GetChild()

```
virtual TopologyNode GetChild (
            unsigned int position )  [virtual]
```

Get child node located at the specified position.

Parameters

position	Position of the node.

Returns

TopologyNode at the specified position.

9.54.4.6 GetDeviceId()

```
virtual int GetDeviceId ( )  [virtual]
```

Get the device ID associated with the node.

Returns

Device ID of the node.

9.54.4.7 GetGuid()

```
virtual PGRGuid GetGuid ( )  [virtual]
```

Get the PGRGuid associated with the node.

Returns

PGRGuid of the node.

9.54.4.8 GetInterfaceType()

```
virtual InterfaceType GetInterfaceType ( )  [virtual]
```

Get the interface type associated with the node.

Returns

Interface type of the node.

9.54.4.9 GetNodeType()

```
virtual NodeType GetNodeType ( )  [virtual]
```

Get the node type associated with the node.

Returns

Node type of the node.

9.54.4.10 GetNumChildren()

```
virtual unsigned int GetNumChildren ( )  [virtual]
```

Get the number of child nodes.

Returns

Number of child nodes.

9.54.4.11 GetNumPorts()

```
virtual unsigned int GetNumPorts ( )  [virtual]
```

Get the number of ports.

Returns

Number of ports.

9.54.4.12 GetPortType()

```
virtual PortType GetPortType (
             unsigned int position )  [virtual]
```

Get type of port located at the specified position.

Parameters

position	Position of the port.

Returns

PortType at the specified position.

9.54.4.13 operator=()

```
virtual TopologyNode& operator= (
            const TopologyNode & other )  [virtual]
```

Assignment operator.

Parameters

other	The TopologyNode to copy from.

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

- TopologyNode.h

9.55 TriggerMode Struct Reference

A camera trigger.

Public Member Functions

- TriggerMode ()

Public Attributes

- bool onOff
  Flag controlling on/off.
- unsigned int polarity
  Polarity value.
- unsigned int source
  Source value.
- unsigned int mode
  Mode value.
- unsigned int parameter
  Parameter value.
- unsigned int reserved [8]
  Reserved for future use.

9.55.1 Detailed Description

A camera trigger.

9.55.2 Constructor & Destructor Documentation

9.55.2.1 TriggerMode()

```
TriggerMode ( )  [inline]
```

9.55.3 Member Data Documentation

9.55.3.1 mode

```
unsigned int mode
```

Mode value.

9.55.3.2 onOff

```
bool onOff
```

Flag controlling on/off.

9.55.3.3 parameter

```
unsigned int parameter
```

Parameter value.

9.55.3.4 polarity

```
unsigned int polarity
```

Polarity value.

9.55.3.5 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.55.3.6 source

```
unsigned int source
```

Source value.

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

- FlyCapture2Defs.h

9.56 TriggerModeInfo Struct Reference

Information about a camera trigger property.

Public Member Functions

- TriggerModeInfo ()

Public Attributes

- bool present

  Presence of trigger mode.
- bool readOutSupported

  Flag indicating if trigger value can be read out.
- bool onOffSupported

  Flag indicating if on/off is supported.
- bool polaritySupported

  Flag indicating if polarity is supported.
- bool valueReadable

  Flag indicating if the value is readable.
- unsigned int sourceMask

  Source mask.
- bool softwareTriggerSupported

  Flag indicating if software trigger is supported.
- unsigned int modeMask

  Mode mask.
- unsigned int reserved [8]

  Reserved for future use.

9.56.1 Detailed Description

Information about a camera trigger property.

9.56.2 Constructor & Destructor Documentation

9.56.2.1 TriggerModeInfo()

```
TriggerModeInfo ( )  [inline]
```

9.56.3 Member Data Documentation

9.56.3.1 modeMask

```
unsigned int modeMask
```

Mode mask.

9.56.3.2 onOffSupported

```
bool onOffSupported
```

Flag indicating if on/off is supported.

9.56.3.3 polaritySupported

```
bool polaritySupported
```

Flag indicating if polarity is supported.

9.56.3.4 present

```
bool present
```

Presence of trigger mode.

9.56.3.5 readOutSupported

```
bool readOutSupported
```

Flag indicating if trigger value can be read out.

9.56.3.6 reserved

```
unsigned int reserved[8]
```

Reserved for future use.

9.56.3.7 softwareTriggerSupported

```
bool softwareTriggerSupported
```

Flag indicating if software trigger is supported.

9.56.3.8 sourceMask

```
unsigned int sourceMask
```

Source mask.

9.56.3.9 valueReadable

```
bool valueReadable
```

Flag indicating if the value is readable.

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

- FlyCapture2Defs.h

9.57 Utilities Class Reference

The Utility class is generally used to query for general system information such as operating system, available memory etc.

Static Public Member Functions

- static Error CheckDriver (const PGRGuid ∗guid)

  Check for driver compatibility for the given camera guid.
- static Error GetDriverDeviceName (const PGRGuid ∗guid, std::string &deviceName)

  Get the driver's name for a device.
- static Error GetSystemInfo (SystemInfo ∗pSystemInfo)

  Get system information.
- static Error GetLibraryVersion (FC2Version ∗pVersion)

  Get library version.
- static Error LaunchBrowser (const char ∗pAddress)

  Launch a URL in the system default browser.
- static Error LaunchHelp (const char ∗pFileName)

  Open a CHM file in the system default CHM viewer.
- static Error LaunchCommand (const char ∗pCommand)

  Execute a command in the terminal.
- static Error LaunchCommandAsync (const char ∗pCommand, AsyncCommandCallback pCallback, void ∗p↩
  UserData)

  Execute a command in the terminal.

9.57.1 Detailed Description

The Utility class is generally used to query for general system information such as operating system, available memory etc.

It can also be used to launch browsers, CHM viewers or terminal commands.

9.57.2 Member Function Documentation

9.57.2.1 CheckDriver()

```
static Error CheckDriver (
            const PGRGuid * guid )  [static]
```

Check for driver compatibility for the given camera guid.

Parameters

guid	Pointer to the guid of the device to check.

Returns

PGR_NO_ERROR if the library is compatible with the currently loaded driver, otherwise an error indicating the type of failure.

9.57.2.2 GetDriverDeviceName()

```
static Error GetDriverDeviceName (
             const PGRGuid * guid,
             std::string & deviceName )  [static]
```

Get the driver's name for a device.

Parameters

guid	Pointer to the guid of the device to check.
deviceName	The device name will be returned in this string

Returns

An Error indicating the success or failure of the function.

9.57.2.3 GetLibraryVersion()

```
static Error GetLibraryVersion (
             FC2Version * pVersion )  [static]
```

Get library version.

Parameters

pVersion	Structure to receive the library version.

Returns

An Error indicating the success or failure of the function.

9.57.2.4 GetSystemInfo()

```
static Error GetSystemInfo (
             SystemInfo * pSystemInfo )  [static]
```

Get system information.

Parameters

pSystemInfo	Structure to receive system information.

Returns

An Error indicating the success or failure of the function.

9.57.2.5 LaunchBrowser()

```
static Error LaunchBrowser (
            const char * pAddress )  [static]
```

Launch a URL in the system default browser.

Parameters

pAddress	URL to open in browser.

Returns

An Error indicating the success or failure of the function.

9.57.2.6 LaunchCommand()

```
static Error LaunchCommand (
            const char * pCommand )  [static]
```

Execute a command in the terminal.

This is a blocking call that will return when the command completes.

Parameters

pCommand	Command to execute.

See also

LaunchCommandAsync()

Returns

An Error indicating the success or failure of the function.

9.57.2.7 LaunchCommandAsync()

```
static Error LaunchCommandAsync (
             const char * pCommand,
             AsyncCommandCallback pCallback,
             void * pUserData )  [static]
```

Execute a command in the terminal.

This is a non-blocking call that will return immediately. The return value of the command can be retrieved in the callback.

Parameters

pCommand	Command to execute.
pCallback	Callback to fire when command is complete.
pUserData	Data pointer to pass to callback.

See also

LaunchCommand()

Returns

An Error indicating the success or failure of the function.

9.57.2.8 LaunchHelp()

```
static Error LaunchHelp (
             const char * pFileName )  [static]
```

Open a CHM file in the system default CHM viewer.

Parameters

pFileName	Filename of CHM file to open.

Returns

An Error indicating the success or failure of the function.

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

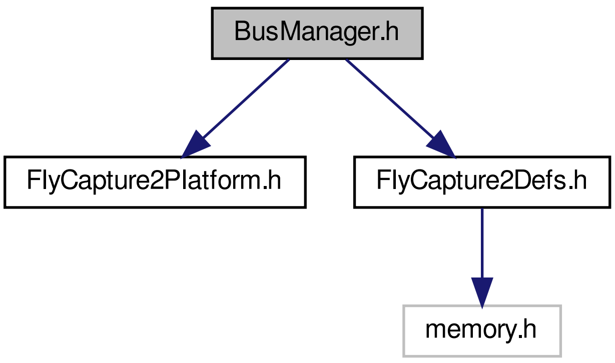
- Utilities.h

Chapter 10

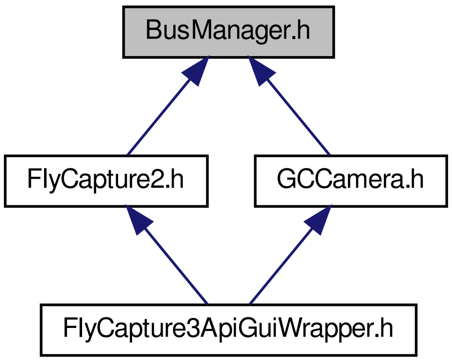
File Documentation

10.1 BusManager.h File Reference

Include dependency graph for BusManager.h:



This graph shows which files directly or indirectly include this file:



Classes

- class BusManager

  The BusManager class provides the functionality for the user to get an PGRGuid for a desired camera or device easily.

Namespaces

- FlyCapture2

Typedefs

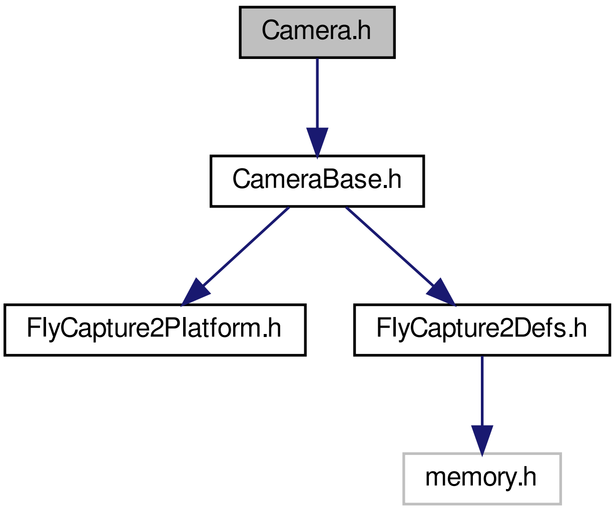
- typedef void(∗ BusEventCallback) (void ∗pParameter, unsigned int serialNumber)

  Bus event callback function prototype.
- typedef void ∗ CallbackHandle

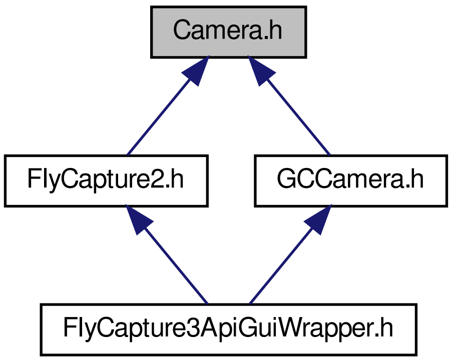
  Handle that is returned when registering a callback.

10.2 Camera.h File Reference

Include dependency graph for Camera.h:



This graph shows which files directly or indirectly include this file:



Classes

- class Camera

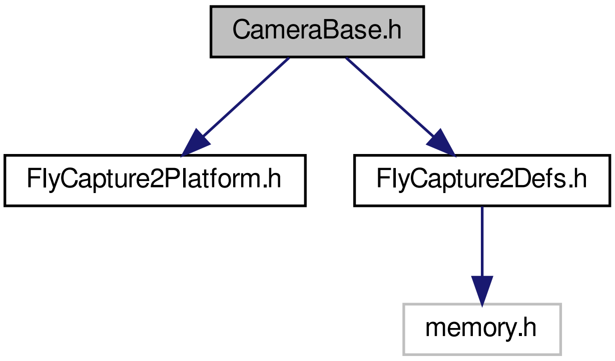
  The Camera object represents a physical camera that uses the IIDC register set.

Namespaces

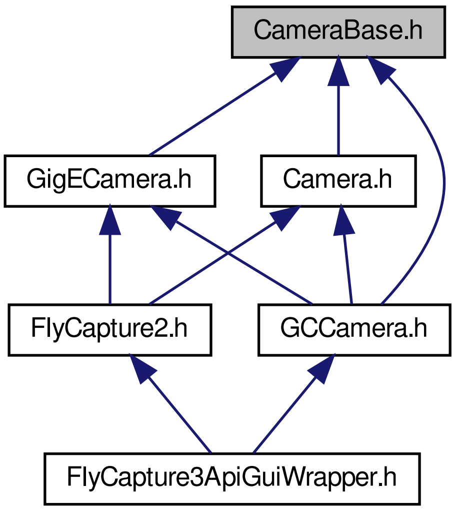
- FlyCapture2

10.3 CameraBase.h File Reference

Include dependency graph for CameraBase.h:



This graph shows which files directly or indirectly include this file:



Classes

- class CameraBase

  The CameraBase class is an abstract base class that defines a general interface to a camera.

Namespaces

- FlyCapture2

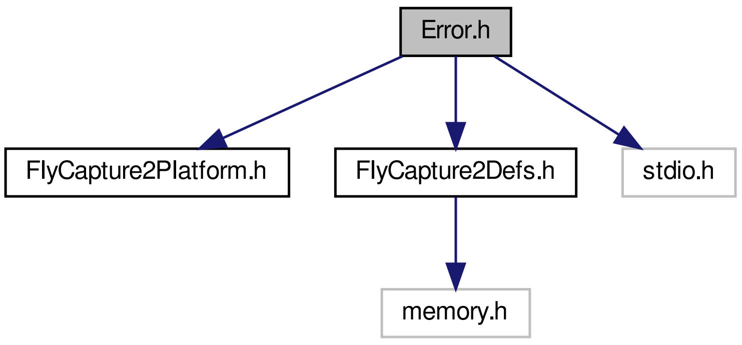
Typedefs

- typedef void(∗ ImageEventCallback) (class Image ∗pImage, const void ∗pCallbackData)

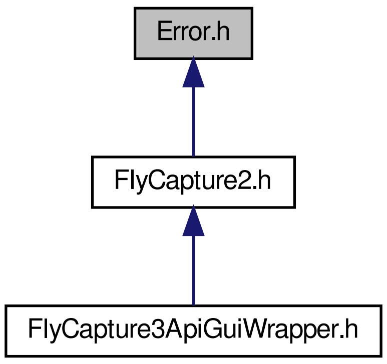
  Image event callback function prototype.

10.4 Error.h File Reference

Include dependency graph for Error.h:



This graph shows which files directly or indirectly include this file:



Classes

- class Error

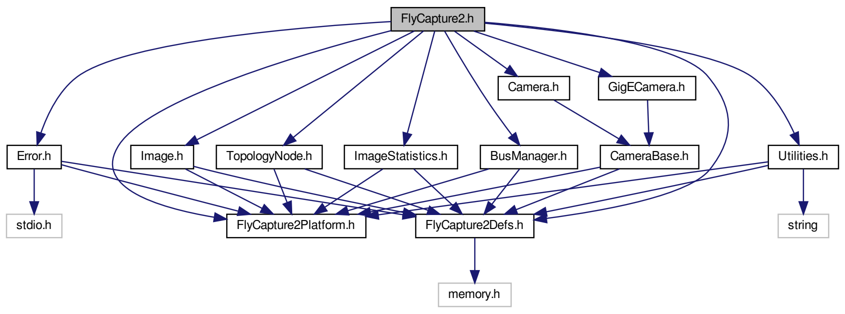
  The Error object represents an error that is returned from the library.

Namespaces

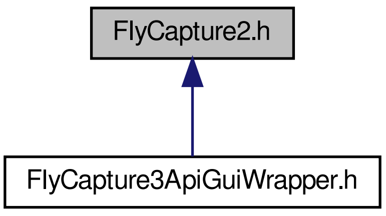
- FlyCapture2

10.5 FlyCapture2.h File Reference

Include dependency graph for FlyCapture2.h:

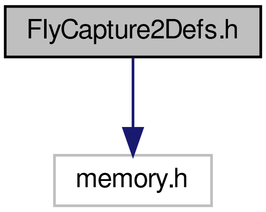


This graph shows which files directly or indirectly include this file:

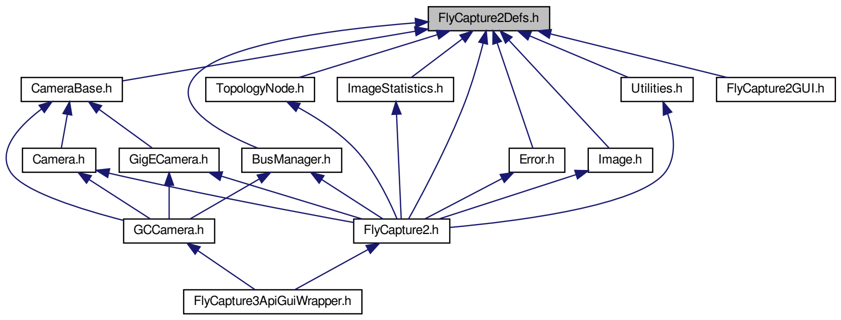


10.6 FlyCapture2Defs.h File Reference

Include dependency graph for FlyCapture2Defs.h:



This graph shows which files directly or indirectly include this file:



Classes

- struct FC2Version

  The current version of the library.
- class PGRGuid

  A GUID to the camera.
- struct IPAddress

  IPv4 address.
- struct MACAddress

  MAC address.
- struct GigEProperty

  A GigE property.
- struct GigEStreamChannel

  Information about a single GigE stream channel.
- struct GigEConfig

  Configuration for a GigE camera.
- struct GigEImageSettingsInfo

Format 7 information for a single mode.

- struct GigEImageSettings

    Image settings for a GigE camera.
- struct Format7ImageSettings

    Format 7 image settings.
- struct Format7Info

    Format 7 information for a single mode.
- struct Format7PacketInfo

    Format 7 packet information.
- struct FC2Config

    Configuration for a camera.
- struct PropertyInfo

    Information about a specific camera property.
- struct Property

    A specific camera property.
- struct TriggerModeInfo

    Information about a camera trigger property.
- struct TriggerMode

    A camera trigger.
- struct StrobeInfo

    A camera strobe property.
- struct StrobeControl

    A camera strobe.
- struct TimeStamp

    Timestamp information.
- struct ConfigROM

    Camera configuration ROM.
- struct CameraInfo

    Camera information.
- struct EmbeddedImageInfoProperty

    Properties of a single embedded image info property.
- struct EmbeddedImageInfo

    Properties of the possible embedded image information.
- struct ImageMetadata

    Metadata related to an image.
- struct LUTData

    Information about the camera's look up table.
- struct CameraStats

    Camera diagnostic information.
- struct PNGOption

    Options for saving PNG images.
- struct PPMOption

    Options for saving PPM images.
- struct PGMOption

    Options for saving PGM images.
- struct TIFFOption

    Options for saving TIFF images.
- struct JPEGOption

    Options for saving JPEG image.
- struct JPG2Option

    Options for saving JPEG2000 image.

- struct BMPOption

    Options for saving Bitmap image.
- struct EventOptions

    Options for enabling device event registration.
- struct EventCallbackData

Namespaces

- FlyCapture2

Macros

- #define NULL 0
- #define FULL_32BIT_VALUE 0x7FFFFFFF

Typedefs

- typedef PropertyInfo TriggerDelayInfo

    The TriggerDelayInfo structure is identical to PropertyInfo.
- typedef Property TriggerDelay

    The TriggerDelay structure is identical to Property.
- typedef void(∗ CameraEventCallback) (void ∗data)

Enumerations

- enum ErrorType {
  PGRERROR_UNDEFINED = -1,
  PGRERROR_OK,
  PGRERROR_FAILED,
  PGRERROR_NOT_IMPLEMENTED,
  PGRERROR_FAILED_BUS_MASTER_CONNECTION,
  PGRERROR_NOT_CONNECTED,
  PGRERROR_INIT_FAILED,
  PGRERROR_NOT_INTITIALIZED,
  PGRERROR_INVALID_PARAMETER,
  PGRERROR_INVALID_SETTINGS,
  PGRERROR_INVALID_BUS_MANAGER,
  PGRERROR_MEMORY_ALLOCATION_FAILED,
  PGRERROR_LOW_LEVEL_FAILURE,
  PGRERROR_NOT_FOUND,
  PGRERROR_FAILED_GUID,
  PGRERROR_INVALID_PACKET_SIZE,
  PGRERROR_INVALID_MODE,
  PGRERROR_NOT_IN_FORMAT7,
  PGRERROR_NOT_SUPPORTED,
  PGRERROR_TIMEOUT,
  PGRERROR_BUS_MASTER_FAILED,
  PGRERROR_INVALID_GENERATION,
  PGRERROR_LUT_FAILED,
  PGRERROR_IIDC_FAILED,
  PGRERROR_STROBE_FAILED,
  PGRERROR_TRIGGER_FAILED,

PGRERROR_PROPERTY_FAILED,
PGRERROR_PROPERTY_NOT_PRESENT,
PGRERROR_REGISTER_FAILED,
PGRERROR_READ_REGISTER_FAILED,
PGRERROR_WRITE_REGISTER_FAILED,
PGRERROR_ISOCH_FAILED,
PGRERROR_ISOCH_ALREADY_STARTED,
PGRERROR_ISOCH_NOT_STARTED,
PGRERROR_ISOCH_START_FAILED,
PGRERROR_ISOCH_RETRIEVE_BUFFER_FAILED,
PGRERROR_ISOCH_STOP_FAILED,
PGRERROR_ISOCH_SYNC_FAILED,
PGRERROR_ISOCH_BANDWIDTH_EXCEEDED,
PGRERROR_IMAGE_CONVERSION_FAILED,
PGRERROR_IMAGE_LIBRARY_FAILURE,
PGRERROR_BUFFER_TOO_SMALL,
PGRERROR_IMAGE_CONSISTENCY_ERROR,
PGRERROR_INCOMPATIBLE_DRIVER,
PGRERROR_FORCE_32BITS = FULL_32BIT_VALUE }

The error types returned by functions.

- enum BusCallbackType {
BUS_RESET,
ARRIVAL,
REMOVAL,
CALLBACK_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

  The type of bus callback to register a callback function for.

- enum GrabMode {
DROP_FRAMES,
BUFFER_FRAMES,
UNSPECIFIED_GRAB_MODE,
GRAB_MODE_FORCE_32BITS = FULL_32BIT_VALUE }

  The grab strategy employed during image transfer.

- enum GrabTimeout {
TIMEOUT_NONE = 0,
TIMEOUT_INFINITE = -1,
TIMEOUT_UNSPECIFIED = -2,
GRAB_TIMEOUT_FORCE_32BITS = FULL_32BIT_VALUE }

  Timeout options for grabbing images.

- enum BandwidthAllocation {
BANDWIDTH_ALLOCATION_OFF = 0,
BANDWIDTH_ALLOCATION_ON = 1,
BANDWIDTH_ALLOCATION_UNSUPPORTED = 2,
BANDWIDTH_ALLOCATION_UNSPECIFIED = 3,
BANDWIDTH_ALLOCATION_FORCE_32BITS = FULL_32BIT_VALUE }

  Bandwidth allocation options for 1394 devices.

- enum InterfaceType {
INTERFACE_IEEE1394,
INTERFACE_USB2,
INTERFACE_USB3,
INTERFACE_GIGE,
INTERFACE_UNKNOWN,
INTERFACE_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

  Interfaces that a camera may use to communicate with a host.

- enum PropertyType {
BRIGHTNESS,
AUTO_EXPOSURE,
SHARPNESS,

WHITE_BALANCE,
HUE,
SATURATION,
GAMMA,
IRIS,
FOCUS,
ZOOM,
PAN,
TILT,
SHUTTER,
GAIN,
TRIGGER_MODE,
TRIGGER_DELAY,
FRAME_RATE,
TEMPERATURE,
UNSPECIFIED_PROPERTY_TYPE,
PROPERTY_TYPE_FORCE_32BITS = FULL_32BIT_VALUE }

Camera properties.

- enum FrameRate {
FRAMERATE_1_875,
FRAMERATE_3_75,
FRAMERATE_7_5,
FRAMERATE_15,
FRAMERATE_30,
FRAMERATE_60,
FRAMERATE_120,
FRAMERATE_240,
FRAMERATE_FORMAT7,
NUM_FRAMERATES,
FRAMERATE_FORCE_32BITS = FULL_32BIT_VALUE }

Frame rates in frames per second.

- enum VideoMode {
VIDEOMODE_160x120YUV444,
VIDEOMODE_320x240YUV422,
VIDEOMODE_640x480YUV411,
VIDEOMODE_640x480YUV422,
VIDEOMODE_640x480RGB,
VIDEOMODE_640x480Y8,
VIDEOMODE_640x480Y16,
VIDEOMODE_800x600YUV422,
VIDEOMODE_800x600RGB,
VIDEOMODE_800x600Y8,
VIDEOMODE_800x600Y16,
VIDEOMODE_1024x768YUV422,
VIDEOMODE_1024x768RGB,
VIDEOMODE_1024x768Y8,
VIDEOMODE_1024x768Y16,
VIDEOMODE_1280x960YUV422,
VIDEOMODE_1280x960RGB,
VIDEOMODE_1280x960Y8,
VIDEOMODE_1280x960Y16,
VIDEOMODE_1600x1200YUV422,
VIDEOMODE_1600x1200RGB,
VIDEOMODE_1600x1200Y8,
VIDEOMODE_1600x1200Y16,
VIDEOMODE_FORMAT7,
NUM_VIDEOMODES,
VIDEOMODE_FORCE_32BITS = FULL_32BIT_VALUE }

DCAM video modes.

- enum Mode {
MODE_0 = 0,
MODE_1,
MODE_2,
MODE_3,
MODE_4,
MODE_5,
MODE_6,
MODE_7,
MODE_8,
MODE_9,
MODE_10,
MODE_11,
MODE_12,
MODE_13,
MODE_14,
MODE_15,
MODE_16,
MODE_17,
MODE_18,
MODE_19,
MODE_20,
MODE_21,
MODE_22,
MODE_23,
MODE_24,
MODE_25,
MODE_26,
MODE_27,
MODE_28,
MODE_29,
MODE_30,
MODE_31,
NUM_MODES,
MODE_FORCE_32BITS = FULL_32BIT_VALUE }

Camera modes for DCAM formats as well as Format7.

- enum PixelFormat {
PIXEL_FORMAT_MONO8 = 0x80000000,
PIXEL_FORMAT_411YUV8 = 0x40000000,
PIXEL_FORMAT_422YUV8 = 0x20000000,
PIXEL_FORMAT_444YUV8 = 0x10000000,
PIXEL_FORMAT_RGB8 = 0x08000000,
PIXEL_FORMAT_MONO16 = 0x04000000,
PIXEL_FORMAT_RGB16 = 0x02000000,
PIXEL_FORMAT_S_MONO16 = 0x01000000,
PIXEL_FORMAT_S_RGB16 = 0x00800000,
PIXEL_FORMAT_RAW8 = 0x00400000,
PIXEL_FORMAT_RAW16 = 0x00200000,
PIXEL_FORMAT_MONO12 = 0x00100000,
PIXEL_FORMAT_RAW12 = 0x00080000,
PIXEL_FORMAT_BGR = 0x80000008,
PIXEL_FORMAT_BGRU = 0x40000008,
PIXEL_FORMAT_RGB = PIXEL_FORMAT_RGB8,
PIXEL_FORMAT_RGBU = 0x40000002,
PIXEL_FORMAT_BGR16 = 0x02000001,
PIXEL_FORMAT_BGRU16 = 0x02000002,
PIXEL_FORMAT_422YUV8_JPEG = 0x40000001,

NUM_PIXEL_FORMATS = 20,
UNSPECIFIED_PIXEL_FORMAT = 0 }

Pixel formats available for Format7 modes.

- enum BusSpeed {
BUSSPEED_S100,
BUSSPEED_S200,
BUSSPEED_S400,
BUSSPEED_S480,
BUSSPEED_S800,
BUSSPEED_S1600,
BUSSPEED_S3200,
BUSSPEED_S5000,
BUSSPEED_10BASE_T,
BUSSPEED_100BASE_T,
BUSSPEED_1000BASE_T,
BUSSPEED_10000BASE_T,
BUSSPEED_S_FASTEST,
BUSSPEED_ANY,
BUSSPEED_SPEED_UNKNOWN = -1,
BUSSPEED_FORCE_32BITS = FULL_32BIT_VALUE }

  Bus speeds.
- enum PCIeBusSpeed {
PCIE_BUSSPEED_2_5,
PCIE_BUSSPEED_5_0,
PCIE_BUSSPEED_UNKNOWN = -1,
PCIE_BUSSPEED_FORCE_32BITS = FULL_32BIT_VALUE }
- enum DriverType {
DRIVER_1394_CAM,
DRIVER_1394_PRO,
DRIVER_1394_JUJU,
DRIVER_1394_VIDEO1394,
DRIVER_1394_RAW1394,
DRIVER_USB_NONE,
DRIVER_USB_CAM,
DRIVER_USB3_PRO,
DRIVER_GIGE_NONE,
DRIVER_GIGE_FILTER,
DRIVER_GIGE_PRO,
DRIVER_GIGE_LWF,
DRIVER_UNKNOWN = -1,
DRIVER_FORCE_32BITS = FULL_32BIT_VALUE }

  Types of low level drivers that flycapture uses.
- enum ColorProcessingAlgorithm {
DEFAULT,
NO_COLOR_PROCESSING,
NEAREST_NEIGHBOR,
EDGE_SENSING,
HQ_LINEAR,
RIGOROUS,
IPP,
DIRECTIONAL_FILTER,
WEIGHTED_DIRECTIONAL_FILTER,
COLOR_PROCESSING_ALGORITHM_FORCE_32BITS = FULL_32BIT_VALUE }

  Color processing algorithms.
- enum BayerTileFormat {
NONE,
RGGB,

GRBG,
GBRG,
BGGR,
BT_FORCE_32BITS = FULL_32BIT_VALUE }

Bayer tile formats.

- enum ImageFileFormat {
FROM_FILE_EXT = -1,
PGM,
PPM,
BMP,
JPEG,
JPEG2000,
TIFF,
PNG,
RAW,
IMAGE_FILE_FORMAT_FORCE_32BITS = FULL_32BIT_VALUE }

  File formats to be used for saving images to disk.
- enum GigEPropertyType {
HEARTBEAT,
HEARTBEAT_TIMEOUT,
PACKET_SIZE,
PACKET_DELAY }

  Possible properties that can be queried from the camera.

Variables

- static const unsigned int sk_maxStringLength = 512

  The maximum length that is allocated for a string.
- static const unsigned int sk_maxNumPorts = 32

  The maximum number of ports one device can have.

10.6.1 Macro Definition Documentation

10.6.1.1 FULL_32BIT_VALUE

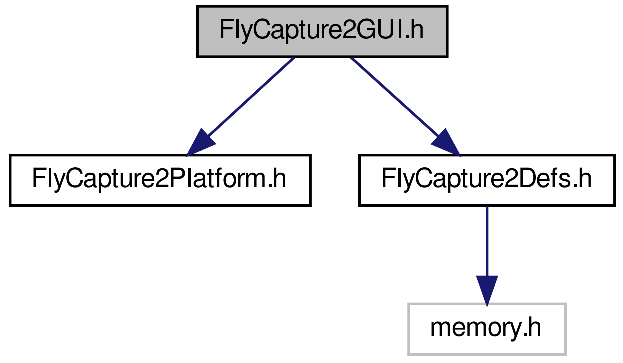
```
#define FULL_32BIT_VALUE 0x7FFFFFFF
```

10.6.1.2 NULL

```
#define NULL 0
```

10.7 FlyCapture2GUI.h File Reference

Include dependency graph for FlyCapture2GUI.h:



Classes

- class CameraControlDlg

  The CameraControlDlg object represents a dialog that provides a graphical interface to a specified camera.
- class CameraSelectionDlg

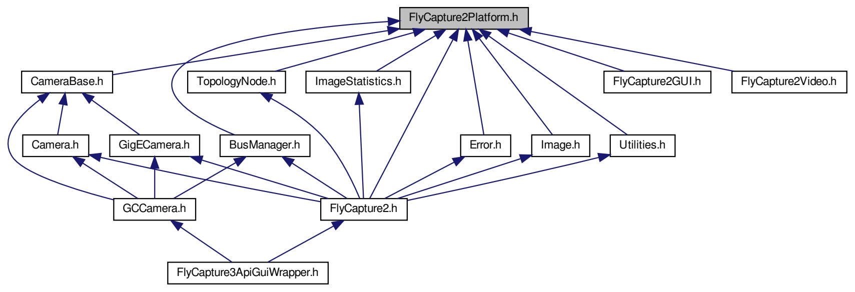
  The CameraSelectionDlg object represents a dialog that provides a graphical interface that lists the number of cameras available to the library.

Namespaces

- FlyCapture2

10.8 FlyCapture2Platform.h File Reference

This graph shows which files directly or indirectly include this file:



Macros

- #define FLYCAPTURE2_API __attribute__ ((visibility ("default")))
- #define FLYCAPTURE2_LOCAL __attribute__ ((visibility ("hidden")))

10.8.1 Macro Definition Documentation

10.8.1.1 FLYCAPTURE2_API

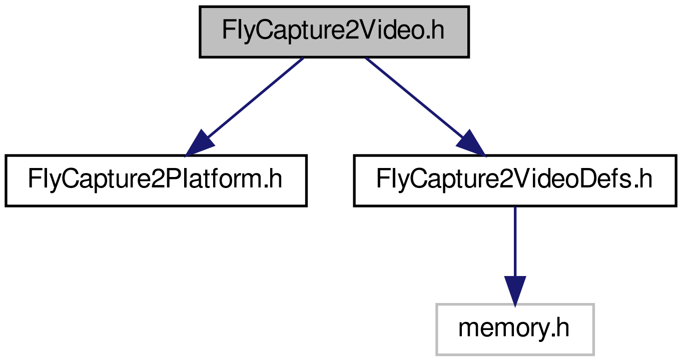
```
#define FLYCAPTURE2_API __attribute__ ((visibility ("default")))
```

10.8.1.2 FLYCAPTURE2_LOCAL

```
#define FLYCAPTURE2_LOCAL __attribute__ ((visibility ("hidden")))
```

10.9 FlyCapture2Video.h File Reference

Include dependency graph for FlyCapture2Video.h:



Classes

- class FlyCapture2Video

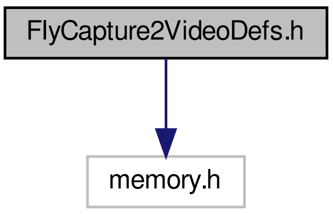
  The FlyCapture2Video class provides the functionality for the user to record images to an AVI file.

Namespaces

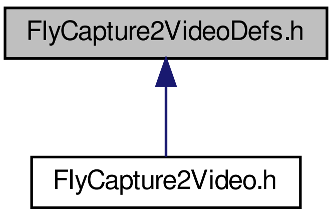
- FlyCapture2

10.10 FlyCapture2VideoDefs.h File Reference

Include dependency graph for FlyCapture2VideoDefs.h:



This graph shows which files directly or indirectly include this file:



Classes

- struct MJPGOption

  Options for saving MJPG files.
- struct H264Option

  Options for saving H264 files.
- struct AVIOption

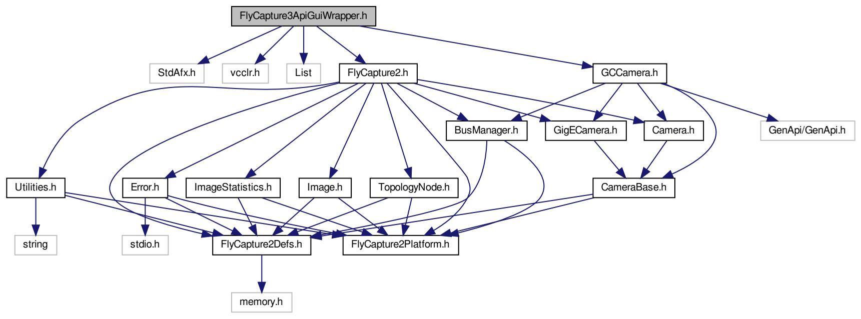
  Options for saving AVI files.

Namespaces

- FlyCapture2

10.11 FlyCapture3ApiGuiWrapper.h File Reference

Include dependency graph for FlyCapture3ApiGuiWrapper.h:



Classes

- class FlyCapture3ApiGuiWrapper

Namespaces

- FlyCapture2
- FlyCap3CameraControl

Macros

- #define WRAPPER_API __declspec(dllimport)

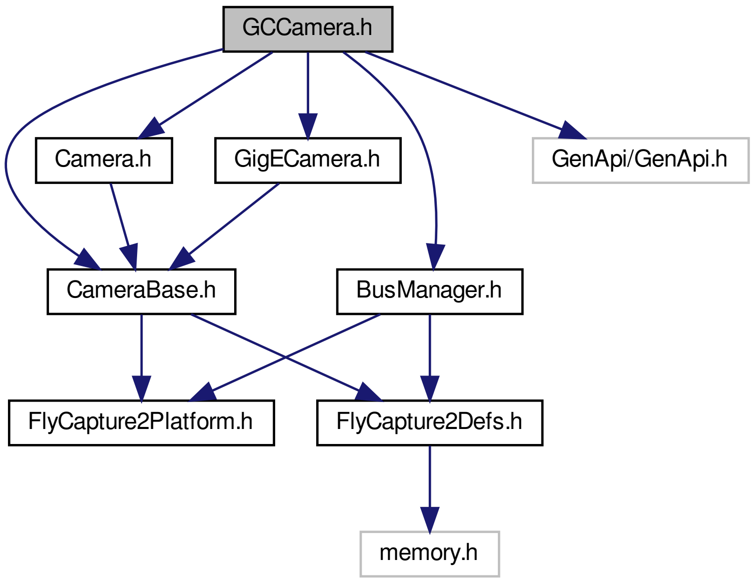
10.11.1 Macro Definition Documentation

10.11.1.1 WRAPPER_API

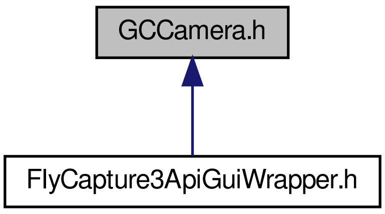
```
#define WRAPPER_API __declspec(dllimport)
```

10.12 GCCamera.h File Reference

Include dependency graph for GCCamera.h:



This graph shows which files directly or indirectly include this file:



Classes

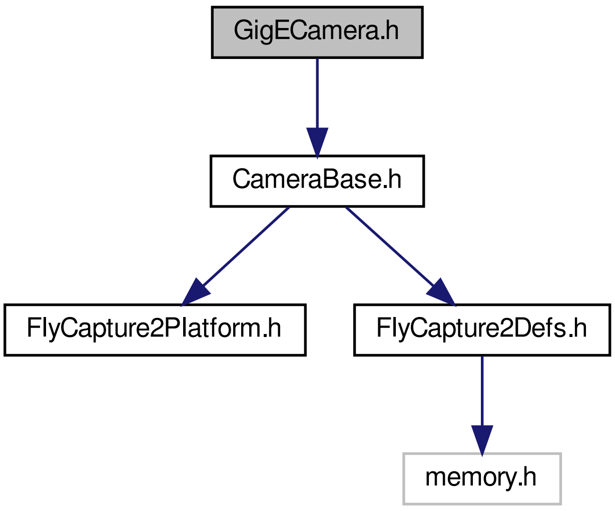
- class GCCamera

Namespaces

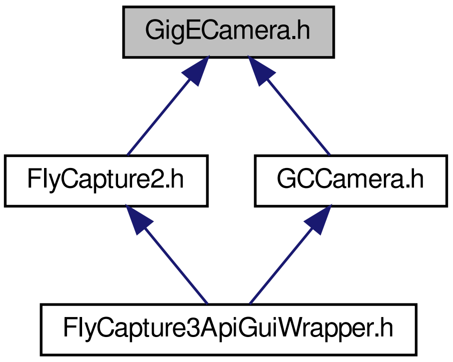
- FlyCapture2

10.13 GigECamera.h File Reference

Include dependency graph for GigECamera.h:



This graph shows which files directly or indirectly include this file:



Classes

- class GigECamera

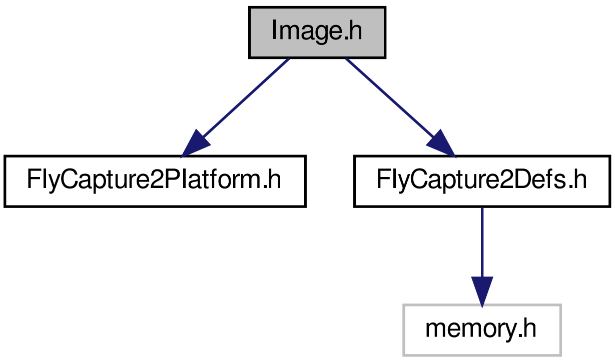
  The GigECamera object represents a physical Gigabit Ethernet camera.

Namespaces

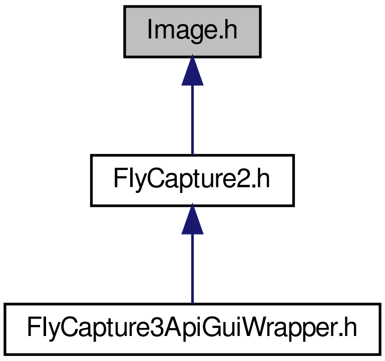
- FlyCapture2

10.14 Image.h File Reference

Include dependency graph for Image.h:



This graph shows which files directly or indirectly include this file:



Classes

- class Image

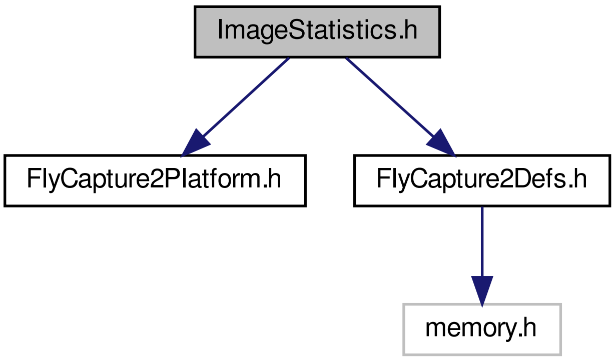
    The Image class is used to retrieve images from a camera, convert between multiple pixel formats and save images to disk.

Namespaces

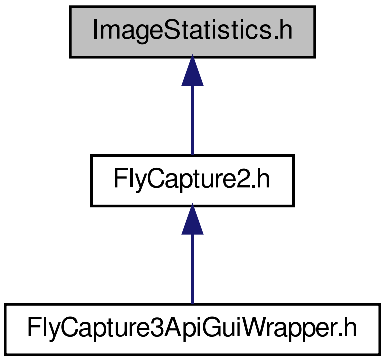
- FlyCapture2

10.15 ImageStatistics.h File Reference

Include dependency graph for ImageStatistics.h:



This graph shows which files directly or indirectly include this file:



Classes

- class ImageStatistics

  The ImageStatistics object represents image statistics for an image.

Namespaces

- FlyCapture2

10.16 Internal.h File Reference

Classes

- class Internal

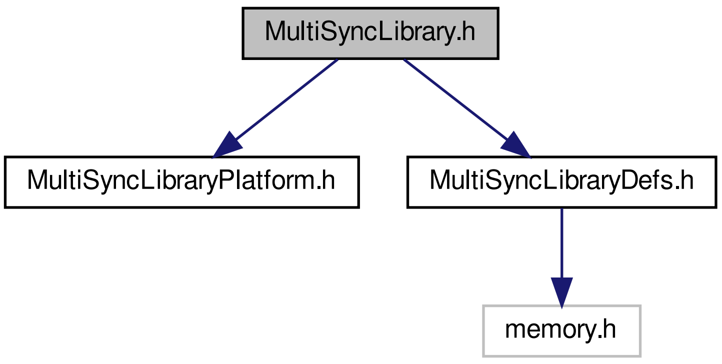
Namespaces

- FlyCapture2

10.17 Licensing.dox File Reference

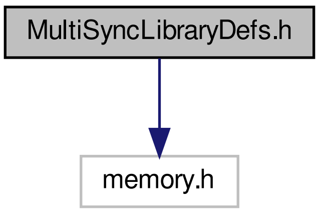
10.18 MultiSyncLibrary.h File Reference

Include dependency graph for MultiSyncLibrary.h:

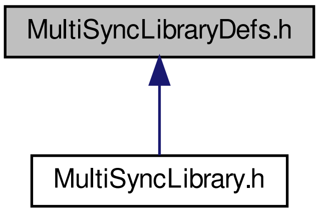


10.19 MultiSyncLibraryDefs.h File Reference

Include dependency graph for MultiSyncLibraryDefs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class SyncManager

Namespaces

- MultiSyncLibrary

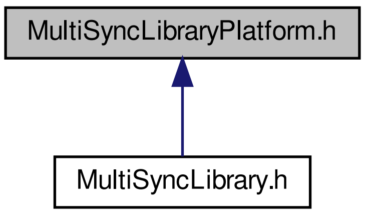
Enumerations

- enum PGRSyncError {
  PGRSyncError_OK = 0,
  PGRSyncError_FAILED,
  PGRSyncError_ALREADY_STARTED,
  PGRSyncError_ALREADY_STOPPED,
  PGRSyncError_CAMERA_NOT_FOUND,
  PGRSyncError_UNKNOWN_ERROR }

- enum PGRSyncMessage {
  PGRSyncMessage_OK = 0,
  PGRSyncMessage_STARTED,
  PGRSyncMessage_STOPPED,
  PGRSyncMessage_SYNCING,
  PGRSyncMessage_NOMASTER,
  PGRSyncMessage_THREAD_ERROR,
  PGRSyncMessage_DEVICE_ERROR,
  PGRSyncMessage_NOT_ENOUGH_DEVICES,
  PGRSyncMessage_BUS_RESET,
  PGRSyncMessage_NOT_INITIALIZED,
  PGRSyncMessage_UNKNOWN_ERROR }

10.20 MultiSyncLibraryPlatform.h File Reference

This graph shows which files directly or indirectly include this file:



Macros

- #define MULTISYNCLIBRARY_API __attribute__ ((visibility ("default")))
- #define MULTISYNCLIBRARY_LOCAL __attribute__ ((visibility ("hidden")))

10.20.1 Macro Definition Documentation

10.20.1.1 MULTISYNCLIBRARY_API

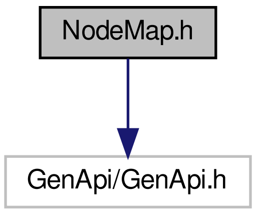
```
#define MULTISYNCLIBRARY_API __attribute__ ((visibility ("default")))
```

10.20.1.2 MULTISYNCLIBRARY_LOCAL

```
#define MULTISYNCLIBRARY_LOCAL __attribute__ ((visibility ("hidden")))
```

10.21 NodeMap.h File Reference

Include dependency graph for NodeMap.h:



Classes

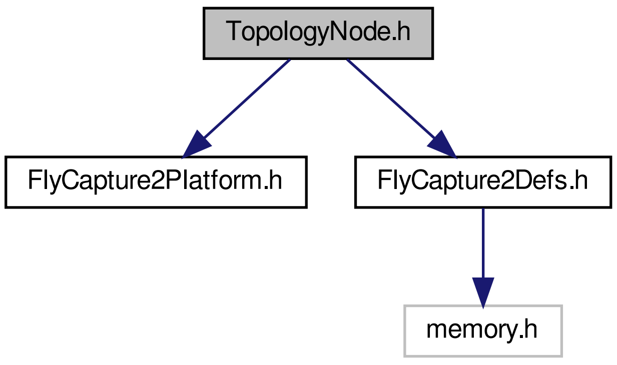
- class NodeMap

Namespaces

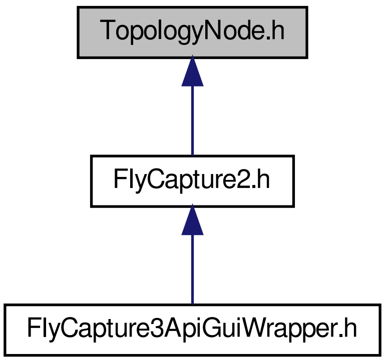
- FlyCapture2

10.22 TopologyNode.h File Reference

Include dependency graph for TopologyNode.h:



This graph shows which files directly or indirectly include this file:



Classes

- class TopologyNode

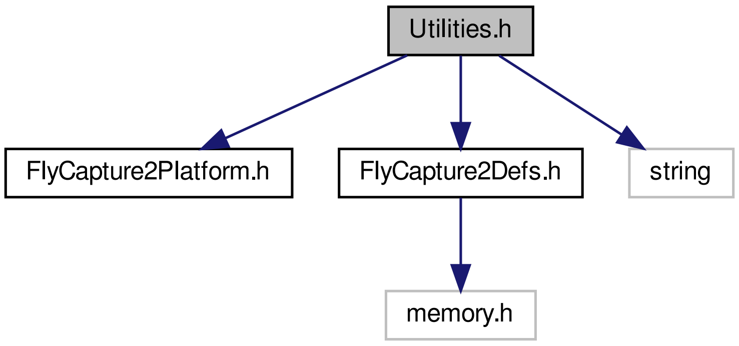
  The TopologyNode class contains topology information that can be used to generate a tree structure of all cameras and devices connected to a computer.

Namespaces

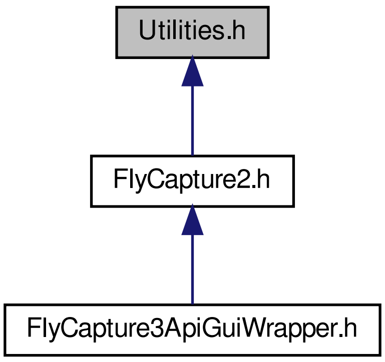
- FlyCapture2

10.23 Utilities.h File Reference

Include dependency graph for Utilities.h:



This graph shows which files directly or indirectly include this file:



Classes

- struct SystemInfo

  Description of the system.
- class Utilities

  The Utility class is generally used to query for general system information such as operating system, available memory etc.

Namespaces

- FlyCapture2

Typedefs

- typedef void(∗ AsyncCommandCallback) (class Error retError, void ∗pUserData)

  Async command callback function prototype.

Enumerations

- enum OSType {
  WINDOWS_X86,
  WINDOWS_X64,
  LINUX_X86,
  LINUX_X64,
  MAC,
  UNKNOWN_OS,
  OSTYPE_FORCE_32BITS = FULL_32BIT_VALUE }

  Possible operating systems.
- enum ByteOrder {
  BYTE_ORDER_LITTLE_ENDIAN,
  BYTE_ORDER_BIG_ENDIAN,
  BYTE_ORDER_FORCE_32BITS = FULL_32BIT_VALUE }

  Possible byte orders.

Index