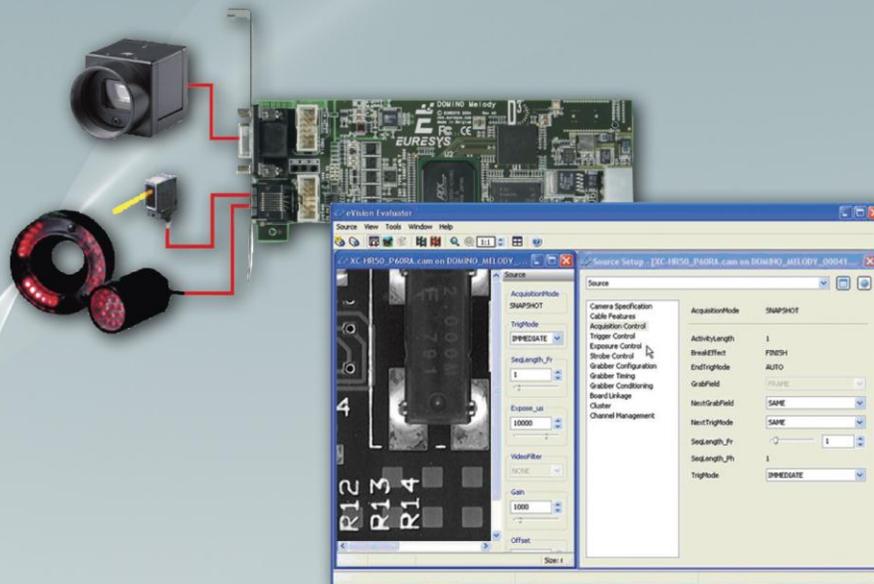


MultiCam™

Release Notes for MultiCam 6.8 September 13, 2012



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Contents

Contents	2
MultiCam Version Details	3
New Product	3
GRABLINK Full XR.....	3
New Feature	3
GRABLINK series.....	3
Improvement	4
GRABLINK series.....	4
Important Notices	4
PCI and PCI Express bus compatibility note for Picolo, Picolo PCIe, Picolo Junior 4, Picolo Pro 2, Picolo Pro 2 PCIe, Picolo Tetra, Picolo Tymo	4
BoardTopology value change for cameras with a pixel clock below 30 MHz on Grablink Base, Grablink DualBase and Grablink Full boards.....	4
Allowed values for the Camera and CamConfig parameters.....	5
Buffer size limits for MultiCam surfaces.....	5
Environments	6
Supported OS.....	6
Supported Programming Interfaces.....	6
Supported Boards	7
Solved Issues	8
GRABLINK series.....	8
Known Issues	9
GRABLINK series.....	9
DOMINO series	12
PICOLO series	12
MultiCam	13

MultiCam Version Details

Windows	Linux
6.8.0.1952	6.8.0.1953

New Product

GRABLINK Full XR

MultiCam 6.8 supports the new Grablink Full XR board.

Refer to the MultiCam Boards Documentation for detailed information.

New Feature

GRABLINK series

New EndTrigEffect parameter on Grablink Base, Grablink DualBase, Grablink Full and Grablink Full XR

When using the *LONGPAGE* acquisition mode with *EndTrigMode = HARD* on Grablink Base, Grablink DualBase, Grablink Full and Grablink Full XR, the new *EndTrigEffect* MultiCam parameter enables the user to choose the effect of the end trigger event as follows:

- When *EndTrigEffect = FOLLOWINGLINE* (default value and previously only available behaviour): on reception of an end trigger event, the MultiCam acquisition controller acquires the line following the end trigger event then terminates the acquisition phase.
- When *EndTrigEffect = PRECEDINGLINE*: on reception of an end trigger event, the MultiCam acquisition controller acquires the line preceding the end trigger event then terminates the acquisition phase immediately.

Refer to the MultiCam Boards Documentation for detailed information.

Improvement

GRABLINK series

Support of new tap geometries on Grablink Full and Grablink Full XR

The following tap geometries are now available for the MEDIUM_2T24 tap configuration on Grablink Full and Grablink Full XR:

- the 2X-1Y tap geometry for MEDIUM Camera Link® RGB dual tap area-scan cameras;
- the 2X tap geometry for MEDIUM Camera Link® RGB dual tap line-scan cameras;
- the 2XM-1Y tap geometry for MEDIUM Camera Link® RGB dual tap area-scan cameras;
- the 2XM tap geometry for MEDIUM Camera Link® RGB dual tap line-scan cameras;
- the 2XR-1Y tap geometry for MEDIUM Camera Link® RGB dual tap area-scan cameras;
- the 2XR tap geometry for MEDIUM Camera Link® RGB dual tap line-scan cameras;
- the 1X-1Y2 tap geometry for MEDIUM Camera Link® RGB dual tap area-scan cameras;
- the 1X-2YE tap geometry for MEDIUM Camera Link® RGB dual tap area-scan cameras.

Important Notices

PCI and PCI Express bus compatibility note for Picolo, Picolo PCIe, Picolo Junior 4, Picolo Pro 2, Picolo Pro 2 PCIe, Picolo Tetra, Picolo Tymo

To ensure correct operation, when using one of the Picolo cards listed above, the response time (also called latency) of the PCI or PCIe bus on the motherboard where the card is plugged must be low enough. If this is not the case, randomly distributed black lines may appear on the image acquired. They are caused by the long response time of the PCI or PCIe bus, leading to a condition known as "FIFO overrun".

The requirements for correct operation depend on the color format and the buffer pitch used. Both are set by the application using the Picolo through MultiCam parameters.

- 1) When the color format is RGB24 (this is default setting in MultiCam Studio), the allowed bus latency is 11 us. (*This is the least favorable case.*)
- 2) When the color format is RGB24 and the MultiCam buffer pitch is set to 4096, the allowed bus latency is 17 us.
- 3) When the color format is YUV422 (packed) or RGB16 and the MultiCam buffer pitch is set to 4096, the allowed bus latency is 29 us.
- 4) When the color format is YUV411 (packed) and the MultiCam buffer pitch is set to 4096, the allowed bus latency is 37 us. (*This is the most favorable case.*)

If you experience this problem, try changing the application parameters towards a more favorable case.

BoardTopology value change for cameras with a pixel clock below 30 MHz on Grablink Base, Grablink DualBase and Grablink Full boards

Since MultiCam 6.7.2.1677, to be able to use cameras with a pixel clock below 30 MHz on Grablink Base, Grablink DualBase and Grablink Full, an application must set the *BoardTopology* board parameter to the *MONO_SLOW* (Grablink Base and Grablink Full) or *DUO_SLOW* (Grablink DualBase) value.

Allowed values for the Camera and CamConfig parameters

On Grablink Base, Grablink DualBase and Grablink Full, the allowed value for the *Camera* parameter is *MyCameraLink* and the allowed values for the *CamConfig* parameters are *PxxSC*, *PxxRC*, *PxxRG*, *LxxxxSC*, *LxxxxSP*, *LxxxxRC*, *LxxxxRP*, *LxxxxRG* and *LxxxxRG2*. All CamFiles have been adapted accordingly and can be downloaded from the Euresys website using the following URL: <http://www.euresys.com/CamFiles/CamFile.asp> . Other boards are not concerned but it is however recommended to use the latest available CamFiles in each case.

Buffer size limits for MultiCam surfaces

Under Windows, the maximum buffer size allowed per MultiCam surface depends on the Windows version:

- about 64MB under Windows XP x86;
- about 32MB under Windows XP x64;
- about 2GB under Windows Vista and Windows Server 2008;
- about 4GB under Windows 7 and Windows Server 2008 R2.

If a MultiCam surface exceeds those limits, MultiCam returns *MC_IO_ERROR* at channel activation.

Environments

Supported OS

Windows

OS Version	Additional Information	
Microsoft Windows XP	x86 (32-bit)	Service Pack 3
	x86-64 (64-bit)	Service Pack 2
Microsoft Windows Vista	x86 (32-bit)	Service Pack 2
	x86-64 (64-bit)	
Microsoft Windows Server 2008	x86 (32-bit)	Service Pack 2
	x86-64 (64-bit)	
Microsoft Windows 7	x86 (32-bit)	Service Pack 1
	x86-64 (64-bit)	
Microsoft Windows Server 2008 R2	x86-64 (64-bit)	Service Pack 1

Linux

MultiCam is designed to be more distribution-independent on x86 and x64 platforms. It is expected to work with a wide range of distributions and has been additionally tested on the 2.6.36 kernels in this release. Support will only be provided under Red Hat Enterprise Linux 5.2, which is the validated distribution.

OS Version	Additional Information	
Red Hat Enterprise Linux 5.2	x86 (32-bit)	Kernel 2.6.18-92
	x86-64 (64-bit)	

Supported Programming Interfaces

MultiCam 6.8 is supplied as:

- A **32-bit binary library** (Windows and Linux) designed to be used with ISO-compliant C/C++ compilers for the development of 32-bit (x86) applications.
- A **64-bit binary library** (Windows and Linux) designed to be used with ISO-compliant C/C++ compilers for the development of 64-bit (x86-64) applications.
- **DirectShow filters** (Windows only) designed to be used with 32-bit (x86) Microsoft Visual C++ compilers for the development of 32-bit (x86) applications.

MultiCam 6.8 should be usable with any development tool that supports at least one of these interfaces.

Please note that these programming interfaces also cover most of the available development tools used with other languages.

The previously available **ActiveX controls library** is not recommended anymore on Windows. It is only available for backwards compatibility purposes. The recommended way of using MultiCam with Microsoft Visual Basic 6 is to call the C API directly. A sample program demonstrating it is available beside the driver on the MultiCam download area of the Euresys website.

The previously available **.NET API** is not recommended anymore on Windows. It is only available for backwards compatibility purposes and is not available for 64-bit development. The recommended way of using MultiCam with a .NET language is to call the C API directly. A sample program demonstrating it is available beside the driver on the MultiCam download area of the Euresys website.

Supported Boards

All boards support 32-bit operating systems as well as 32-bit DMA. The following table lists the support of 64-bit operating systems as well as the support of 64-bit DMA for each board.

PICOLO series	64-bit	64-bit DMA	DOMINO series	64-bit	64-bit DMA	GRABLINK series	64-bit	64-bit DMA
Picolo	✓	-	Domino Iota	-	-	Grablink Value	✓	-
Picolo PCIe	✓	-	Domino Alpha 2	-	-	Grablink Value cPCI	✓	-
Picolo Junior 4	✓	-	Domino Melody	✓	-	Grablink Expert 2	✓	-
Picolo Pro 2	✓	-	Domino Harmony	✓	-	Grablink Expert 2 cPCI	✓	-
Picolo Pro 2 PCIe	✓	-	Domino Symphony	✓	-	Grablink Avenue	✓	-
Picolo Pro 3	✓	-	Domino Symphony PCIe	✓	-	Grablink Express	✓	-
Picolo Tetra	✓	-				Grablink Quickpack ColorScan	✓	-
Picolo Tymo	✓	-				Grablink Quickpack CFA	✓	-
Picolo Alert	✓	-				Grablink Quickpack CFA PCIe	✓	-
Picolo Alert PCIe	✓	-				Grablink Full	✓	✓
Picolo Alert Compact	✓	-				Grablink DualBase	✓	✓
Picolo Alert Compact PCIe	✓	-				Grablink Base	✓	✓
Picolo Alert RC	✓	-				Grablink Full XR (new)	✓	✓
Picolo Alert RCRB	✓	-						
Picolo Alert RCRB PCIe	✓	-						
Picolo Diligent	✓	-						
Picolo Diligent Plus	✓	-						

Solved Issues

GRABLINK series

Wrong Event Signaling on System IOs Outputs Ports when the Camera Link downstream signals (FVAL, LVAL or DVAL) are affected by glitches

Affected boards: [Grablink Base](#), [Grablink DualBase](#), [Grablink Full](#), [Grablink Full XR](#)

This may occur only in the following configurations and when glitches occur on FVAL, LVAL or DVAL signals:

- OutputConfig=EVENT, SetSignal is one of the following: FVAL_GOHIGH, FVAL_GOLOW, LVAL_GOHIGH, LVAL_GOLOW, DVAL_GOHIGH, or DVAL_GOLOW.
- OutputConfig=EVENT, ResetSignal is one of the following: FVAL_GOHIGH, FVAL_GOLOW, LVAL_GOHIGH, LVAL_GOLOW, DVAL_GOHIGH, or DVAL_GOLOW.

This malfunction is solved since MultiCam 6.8.0.1952.

MultiCam channel sometimes remains in the ACTIVE state after an acquisition failure

Affected boards: [Grablink Base](#), [Grablink DualBase](#), [Grablink Full](#), [Grablink Full XR](#)

In some cases, when an acquisition failure occurs, a MultiCam channel can be left in the *ACTIVE* state after issuing an *MC_SIG_ACQUISITION_FAILURE* signal. Subsequently, the *MC_SIG_END_CHANNEL_ACTIVITY* signal is never issued in that case.

This malfunction is solved since MultiCam 6.8.0.1950.

Using the MONO_SLOW board topology might lead to MC_IO_ERROR or computer crash

Affected board: [Grablink Base](#)

When setting *BoardTopology* to the *MONO_SLOW* value (i.e. disabling the ECCO feature), MultiCam might return *MC_IO_ERROR* or even crash the computer.

This malfunction is solved since MultiCam 6.8.0.1938.

Acquisition timeout with partial surface filling

Affected boards: [Grablink Base](#), [Grablink DualBase](#), [Grablink Full](#), [Grablink Full XR](#)

When acquiring N-1 lines in a surface of N lines, the acquisition may stall. This may occur only in the following configurations:

- *FvalMode = FC, LvalMode = LA* (area-scan acquisition with a variable number of lines)
- *FvalMode = FC, LvalMode = LN* (raw grabbing acquisition)
- *AcquisitionMode = LONGPAGE, EndTrigMode = HARD*

This malfunction is solved since MultiCam 6.8.0.1938.

Inaccurate value for PageDelay_Ln and EndPageDelay_Ln

Affected boards: [Grablink Base](#), [Grablink DualBase](#), [Grablink Full](#), [Grablink Full XR](#)

Two lines are added to the value given to *PageDelay_Ln* or *EndPageDelay_Ln* when it is not equal to 0. For instance, if *PageDelay_Ln* is set to 3, this will lead to a delay of 5 lines.

This malfunction is solved since MultiCam 6.8.0.1938.

Inoperative LineTrigFilter for the Filter_10us and Filter_1us values for differential inputs

Affected boards: Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

Setting *LineTrigFilter* to *Filter_10us* or *Filter_1us* on *DIN1* and *DIN2* differential inputs will only filter out pulses whose duration is respectively smaller than 1.4 μ s and 500 ns.

This malfunction is solved since MultiCam 6.8.0.1938.

Elapsed_Fr and Remaining_Fr values may be incorrect when AcquisitionMode=HFR

Affected boards: all Grablink boards supporting AcquisitionMode=HFR

When *AcquisitionMode=HFR*, *Elapsed_Fr* and *Remaining_Fr* contain invalid values after acquiring the last acquisition phase if *SeqLength_Fr* is not a multiple of *PhaseLength_Fr*.

This malfunction is solved since MultiCam 6.8.0.1938.

MultiCam returns MC_IO_ERROR at channel activation when BoardTopology=DUO_SLOW or ECCO_PLLResetControl=CHANNEL_ACTIVATION on connector B

Affected board: Grablink DualBase

When either setting *BoardTopology* to the *DUO_SLOW* value (i.e. disabling the ECCO feature) or setting *ECCO_PLLResetControl* to the *CHANNEL_ACTIVATION* value, MultiCam returns *MC_IO_ERROR* when activating a channel created using connector B.

This malfunction is solved since MultiCam 6.8.0.1938.

Channel not stopped gracefully when set to IDLE using asynchronous reset operation on area-scan cameras

Affected boards: Grablink Base, Grablink DualBase, Grablink Full

When setting a channel to the IDLE state during the camera exposure phase with an asynchronous reset operated area-scan camera, the exposure is abruptly stopped and no readout phase occurs.

This malfunction is solved since MultiCam 6.8.0.1924.

Broken channel after deactivation using AcquisitionMode=LONGPAGE with EndTrigMode=HARD

Affected boards: Grablink Base, Grablink DualBase, Grablink Full

When using the *LONGPAGE* acquisition mode with hardware end triggers and *BreakEffect=FINISH*, a timeout occurs when deactivating the channel before getting the hardware end trigger. After this the channel is non-functional.

This malfunction is solved since MultiCam 6.8.0.1924.

Inoperative raw grabbing (FvalMode = FC, LvalMode = LN)

Affected boards: Grablink Base, Grablink DualBase, Grablink Full

Image acquisition does not work correctly when using the raw grabbing modes (*FvalMode = FC*, *LvalMode = LN*) if the amount of data acquired is smaller than the size of the MultiCam surface used for the acquisition.

Refer to the MultiCam Boards Documentation for detailed information about this feature.

This malfunction is solved since MultiCam 6.8.0.1924.

Known Issues

GRABLINK series

Line-scan acquisitions with PageLength_Ln=1 may lead to segmentation fault or kernel panic under Linux

Affected boards: Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

When performing line-scan acquisitions with *PageLength_Ln* set to 1, some segmentation fault or kernel panic issues have been observed in rare cases, depending on the Linux distribution used.

As a workaround, if the problem occurs, setting PageLength_Ln to a value greater than 1 will make it disappear.

MC_SIG_END_ACQUISITION_SEQUENCE signal is generated twice when EndTrigEffect=FOLLOWINGLINE

Affected boards: Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

When using the *LONGPAGE* acquisition mode with *EndTrigMode=HARD* and *EndTrigEffect=FOLLOWINGLINE*, the *MC_SIG_END_ACQUISITION_SEQUENCE* signal is generated twice when enabled.

As a workaround, you can either use EndTrigEffect=PRECEDINGLINE or handle the MC_SIG_END_ACQUISITION_SEQUENCE signal twice.

Last column of acquired images may contain invalid data using Bayer CFA to RGB conversion

Affected boards: Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

When using Bayer CFA to RGB conversion, the last column of acquired images may contain invalid data, depending on the resolution of the Bayer camera used.

As a workaround, you should ignore the last column of the image.

Misbehaviour of the trigger decimation unit when using both software and hardware triggers together

Affected boards: Grablink Quickpack CFA PCIe, Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

The trigger decimation unit does not take the occurrence of software triggers into account for the decimation counter. This may lead to misbehaviour especially when the first acquisition phase has been software triggered. In this case the trigger decimation unit is still continuing to consider the value of *TrigDelay_Pls* parameter instead of *NextTrigDelay_Pls* parameter. The *NextTrigDelay_Pls* parameter is only taken into account from the second hardware initiated trigger event.

As a workaround you can either avoid using software triggers with this feature or use the same value for both TrigDelay_Pls and NextTrigDelay_Pls parameters.

Synchronized acquisition broken on slave channels for AcquisitionMode=LONGPAGE, BreakEffect=FINISH and EndTrigMode=HARD when master channel is stopped before hardware end trigger

Affected boards: Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

Synchronized acquisition using two or more line-scan cameras connected on several boards is broken on slaves when channels are restarted in the following conditions:

- *AcquisitionMode = LONGPAGE;*
- *BreakEffect = FINISH;*
- *EndTrigMode = HARD;*
- *The master channel is set to the IDLE state before receiving the hardware end trigger and before setting the slave channels to the IDLE state.*

As a workaround, this problem can be avoided by setting all slave channels to IDLE before setting the master channel to IDLE.

No acquisition failure event when LineCaptureMode is PICK or ADR

Affected boards: Grablink Avenue, Grablink Express, Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

No acquisition failure event is issued when needed if *LineCaptureMode* is *PICK*. Moreover, on Grablink Avenue and Grablink Express, no acquisition failure event is issued when needed if *LineCaptureMode* is *ADR*.

LineTriggerViolation wrongly incremented at channel (de)activation when using the rate converter

Affected boards: Grablink Avenue, Grablink Express, Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

The *LineTriggerViolation* parameter is wrongly incremented when a channel is activated or deactivated if *LineRateMode* is set to *CONVERT*.

The upper limit of *Hactive_Px* is 65504 instead of 65535

Affected boards: Grablink Base, Grablink DualBase, Grablink Full, Grablink Full XR

The upper limit for the *Hactive_Px* parameter is currently 65504 instead of 65535 (this value depends on the *TapConfiguration* parameter value). When setting a value greater than 65504, MultiCam returns *MC_RANGE_ERROR*.

Cannot change connector for a camera without creating the channel again

Affected board: Grablink DualBase

If a channel is first created on the A connector, no acquisition will be performed by just setting the *Connector* parameter to the B value when changing the camera from the A connector to the B connector. In that case, the channel must be created again using the B connector.

Inoperative timeout for *clSerialRead* and *clSerialWrite* functions of the Camera Link® serial linux library

Affected boards: all Grablink boards

Under linux, the *clSerialRead* and *clSerialWrite* functions of the *libclseremc.so* library do not take the timeout passed as fourth argument into account. These functions simply return *CL_ERR_NO_ERR* immediately instead of *CL_ERR_TIMEOUT* when no data could be read or written within the specified timeout.

Inoperative VIDEO acquisition mode when *ActivityLength* is not equal to 1

Affected boards: Grablink Avenue, Grablink Express

If *ActivityLength* is not equal to 1 when *AcquisitionMode=VIDEO*, the frame grabber only acquires the first sequence of images (i.e. the number of images defined by the *SeqLength_Fr* parameter) then remains in the *ACTIVE* state without acquiring any additional image.

Bad behaviour of *WindowX_Px*

Affected boards: Grablink Avenue, Grablink Express

When changing the *WindowX_Px* parameter more than once, the system has to be rebooted to be able to activate the channel.

*As a workaround, don't change the *WindowX_Px* parameter more than once.*

Grablink Quickpack CFA may not be seen by MultiCam when there are many boards in the system

Affected board: Grablink Quickpack CFA (PCIe)

When Grablink Quickpack CFA (PCIe) is present beside other Grablink boards in the computer, it may not be seen by MultiCam after subsequent reboots following the installation. This occurs only with Linux operating systems.

There is no workaround.

Invalid strobe duration with ITTL

Affected board: Grablink Expert 2

The strobe signal provided by the ITTL I/O line is about 40-50 μ s larger than expected.

As a workaround, reduce the duration of the strobe by 50 μ s when using ITTL lines.

Wrong serial port ID returned by Camera Link® serial library

Affected board: Grablink Express

The "Grablink Avenue" port ID is returned instead of "Grablink Express" when calling the *clGetSerialPortIdentifier* function of the Camera Link® serial library with a Grablink Express.

There is no workaround.

Inoperative StartExposure signal for subsequent images in a sequence

Affected boards: all Grablink boards

When acquiring a sequence of 2 or more images, the `MC_SIG_START_EXPOSURE` signal is only issued for the first acquired image.

There is no workaround.

DOMINO series***Virtual COM port not removed when uninstalling MultiCam***

Affected board: Domino Symphony (PCIe)

A virtual COM port that has been set through the `SerialControl<A,B,C,D>` parameter is not removed when the MultiCam driver is uninstalled.

As a workaround, restart Windows after uninstalling MultiCam and the virtual COM port will be removed.

Invalid strobe pulse when using PreStrobe_us parameter

Affected boards: Domino Melody, Domino Harmony, Domino Symphony (PCIe)

The pre-strobe function is not functional.

There is no workaround.

PICOLO series***ImageSizeX is 702 instead of 704 when Standard=PAL and PixelTiming=BROADCAST***

Affected boards: Picolo, Picolo Pro 2, Picolo Pro 3, Picolo Junior 4, Picolo Tetra, Picolo Tymo

When `Standard=PAL` and `PixelTiming=BROADCAST`, `ImageSizeX` is wrongly set to 702 pixels instead of 704.

As a workaround, manually set ImageSizeX to the correct value.

InvalidCastException when retrieving Surface associated with SignalInfo instance

Affected board: Pico Alert (PCIe)

When running a .NET application, an InvalidCastException exception can be raised while retrieving the MultiCam callback, the Surface associated to a SignalInfo instance. Thus, when executing the following statement:
Surface currentSurface = signalInfo.Surf.

There are two workaround:

1. *Check if the image can be discarded. This exception can be caught in the customer application and the image can be discarded.*
2. *Repeatedly call Surface currentSurface = signalInfo.Surf statement until no exception is raised. Example:*

```
bool ok = false;
while(!ok)
{
    try
    {
        surface = signalInfo.Surf;
        ok = true;
    }
    catch(InvalidCastException e)
    {
    }
}
```

MultiCam

Left-over binaries after uninstalling MultiCam from Windows 7

Since Windows 7, some MultiCam driver binaries located in *C:\Windows\system\leuresys\multicam* are left on the system after uninstalling MultiCam. Deleting them manually is allowed once MultiCam has been uninstalled.

Windows Security warning when installing MultiCam on Windows Vista or Windows Server 2008

Under undetermined circumstances, Windows Vista and Windows Server 2008 are unable to verify the publisher in the MultiCam driver signatures and display a Windows Security warning to the user.

If this occurs, just accept to install the driver anyway and the installation process will go on.