

Matrox Helios eCL/XCL

Camera Interface Application Note

Photonfocus MV-D752-80-CL-8 October 6, 2006

Basics about the camera

Mode of operations as per Matrox Imaging (in parentheses as per camera manufacturer)

Basics about the interface modes

Camera Descriptions

- Effective resolution: $852 \times 582 \times 8\text{-bit}$ @ 170 fps.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 40 MHz pixel clock rate.

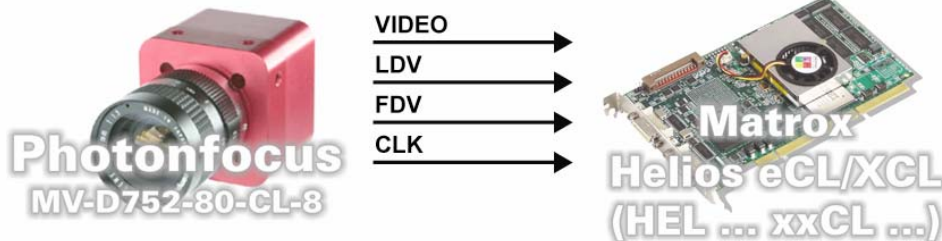
Interface Mode

- Continuous (Free Running)
- Asynchronous reset (Trigger mode with external edge triggered exposure control)

Camera Interface Briefs

Mode 1: Continuous

- $758 \times 582 \times 8\text{-bit}$ @ 170 fps (full resolution).
- $256 \times 256 \times 8\text{-bit}$ @ 1100 fps (ROI).
- Camera Link BASE interface (Dual tap).
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video from camera.
- DCF used: [MVD752_752x580_8bitCon.DCF](#) (full resolution)
- DCF used: [MVD752_256x256_8bitCon.DCF](#) (ROI)



Mode 2: Asynchronous reset

- $758 \times 582 \times 8\text{-bit}$ (full resolution).
- $256 \times 256 \times 8\text{-bit}$ (ROI).
- Camera Link BASE interface (Dual tap).
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending EXSYNC (CC1) signal to camera to initiate the exposure.
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video from camera.

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Camera Interface Application Note

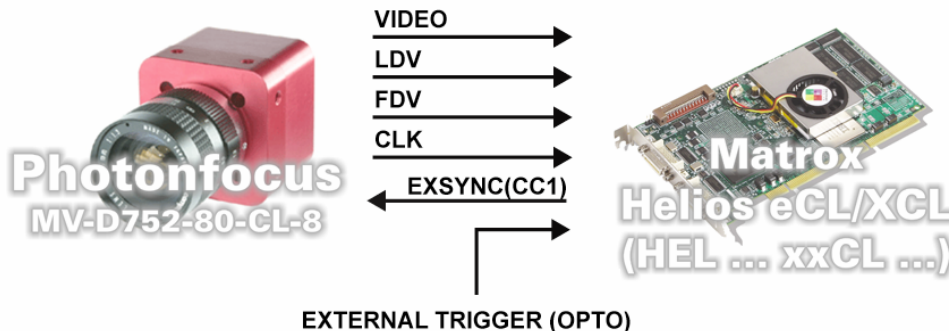
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Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset

- DCF used: [MVD752_752x580_8bitAsync.DCF](#) (full resolution)
- DCF used: [MVD752_256x256_8bitAsync.DCF](#) (ROI)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Helios eCL/XCL receives the continuous video from the camera at 170 frames per second (full resolution) or higher depending on the ROI settings. To increase the frame rate, uncheck the **constant frame rate** checkbox in the PhotonFocus PFRemote Camera Configuration utility (PFRemote.EXE).
- **Exposure time:** Exposure time is determined by the **Exposure Time Field** setting in the PFRemote utility. Refer to the camera manual for more information.
- **Camera settings:** The camera mode is set to **Default** (Free Running) for both DCFs. The ROI resolution (for [MVD752_256x256_8bitCon.DCF](#) only) is set to **256x256** using the window applet of PFRemote utility. Refer to the PFRemote manual for more information.

Mode 2: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** The width (rising edge to falling edge) of the EXSYNC (CC1) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera settings:** The camera mode is set to **Trigger mode with external edge triggered exposure control** for both DCFs. The ROI resolution (for [MVD752_256x256_8bitAsync.DCF](#) only) is set to **256x256** using the window applet of PFRemote utility. Furthermore check the **Advanced, Sync Pulse High Active** and **Combined Trigger/Exposure** checkboxes. Refer to the PFRemote manual for more information.

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Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous

- **Cable and Connection:** Standard Camera Link cable.

Mode 2: Asynchronous reset

- **Cable and Connection:** Standard Camera Link.
- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 7 and 2) on the Expanded I/O adapter bracket.

EXPANDED I/O BRACKET (9-pin connector)

				External Trigger Source	
OPTOTRIG +	07	←	SIGNAL	--	
OPTOTRIG -	02	←	GROUND	--	

The DCFs mentioned in this application note are also attached (embedded) to this PDF file – use the Adobe Reader's View File Attachment to access the DCF files. The information furnished by Matrox Electronics System, Ltd. is believed to be accurate and reliable. Please verify all interface connections with camera documentation or manual. Contact your local sales representative or Matrox Sales office or Matrox Imaging Applications at 514-822-6061 for assistance. © Matrox Electronic Systems Ltd, 2006-2011.

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