Matrox Odyssey eCL/XCL

Camera Interface Application Note

Photonfocus MV-D1280-640-CL-8 December 12, 2008

Basics about the camera

Camera Descriptions

- Effective resolution: 1280 × 1024 × 8-bit @ 245 fps.
- Camera Link FULL interface (8-bit, eight tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 82.5 MHz pixel clock rate.

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

Interface Mode

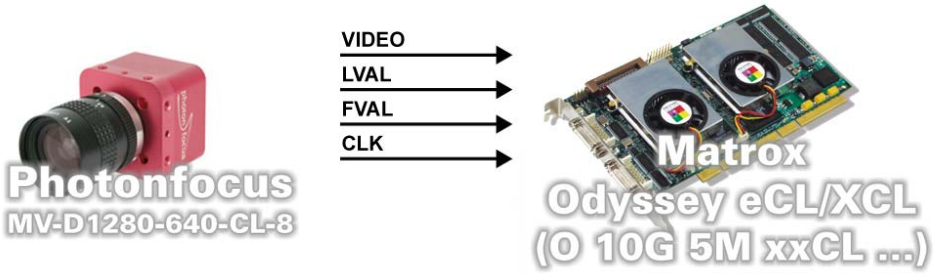
- Continuous (Free Running)
- Pseudo-continuous (Trigger Pulse Width)
- Asynchronous reset (Trigger Pulse Width)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 1280 × 1024 × 8-bit @ 245 fps.
- Camera Link FULL interface (8-bit, eight tap).
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 82.5 MHz) and video from camera.
- DCF used: MVD1280E40CL12_1280x1024_8bit8tapCon.DCF



Mode 2: Pseudo-continuous

- 1280 × 1024 × 8-bit.
- Camera Link FULL interface (8-bit, eight tap).
- Matrox Odyssey eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control the exposure.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 82.5 MHz) and video from camera.
- DCF used: MVD1280E40CL12_1280x1024_8bit8tapPcon.DCF

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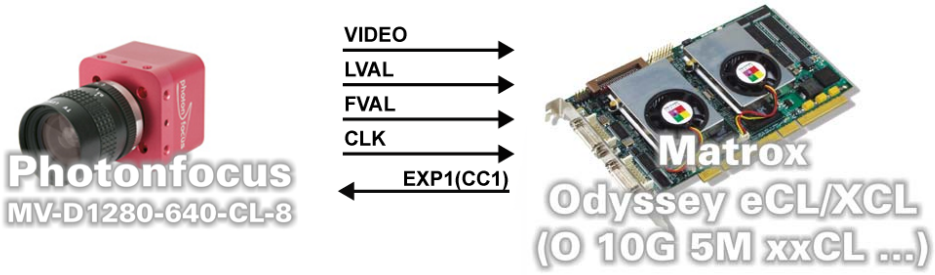
Basics about the interface modes

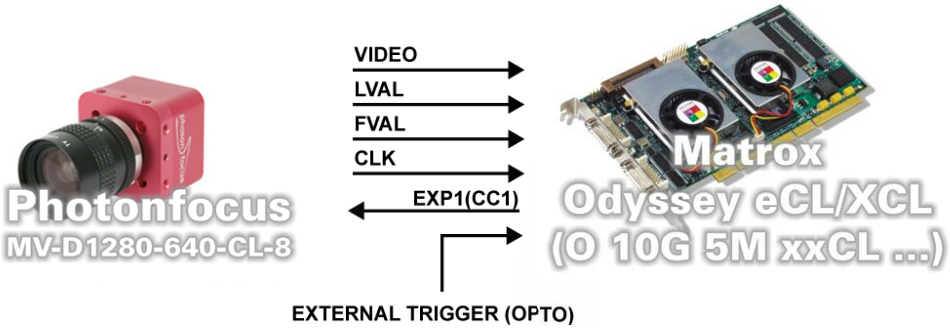
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- 1280 × 1024 × 8-bit.
- Camera Link FULL interface (8-bit, eight tap).
- Matrox Odyssey eCL/XCL receiving external trigger signal.
- Matrox Odyssey eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control the exposure.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 82.5 MHz) and video from camera.
- DCF used: MVD1280E40CL12_1280x1024_8bit8tapAsync.DCF



Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Odyssey eCL/XCL receives the continuous video from the camera at 245 frames per second. To increase the frame rate, reduce exposure time 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.

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Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Camera settings:** In the PFRemote utility, the camera is set as follows (refer to the camera manual for more information):

Mode	Setting
Trigger	Continuous
Output	8-bit
Constant Frame Rate	unchecked

Mode 2: Pseudo-continuous

- **Frame rate**: The frame rate is determined by the frequency of the EXPOSURE1 (CC1) signal.
- **Exposure time:** The EXPOSURE1 (CC1) signal active duration initiates and controls the camera's exposure time. To modify the exposure time, in Matrox Intellicam change the **Timer 1** value in the DCF or use the MIL MdigControl function. Refer to the MIL on-line Help for more information.
- **Camera settings:** In the PFRemote utility, the camera is set as follows (refer to the camera manual for more information):

Mode	Setting
Trigger	Interface Trigger, Trigger Pulse Width
Output	8-bit
SYNC Pulse Active High	checked
Combined trigger/exposure	checked
Constant Frame Rate	unchecked

Mode 3: Asynchronous Reset

- **Frame rate**: The frame rate is determined by the frequency of the external trigger signal. The period between the external trigger signals must be larger than the frame readout period plus the exposure time.
- **Exposure time:** Refer to Mode 2: Pseudo-continuous.
- **Camera settings:** Refer to Mode 2: Pseudo-continuous.

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Cabling details for the interface modes

Cabling Requirements

Mode 1 and 2: Continuous and Pseudo-continuous

- **Cable and Connection:** Two standard Camera Link cables.

Mode 3: Asynchronous reset

- **Cable and Connection:** Two standard Camera Link cables.
- **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.

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