Matrox Odyssey eCL/XCL
Camera Interface Application Note
Photonfocus MV-D640-66-CL-10 October 5, 2006

Basics about the camera

Camera Descriptions

- Effective resolution: 640 × 480 × 10-bit @ 200 fps.
- Camera Link BASE interface (10-bit, dual tap).
- Progressive scan.
- Internal sync.
- Internal exposure control.
- 66 MHz pixel clock rate.

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

Interface Mode

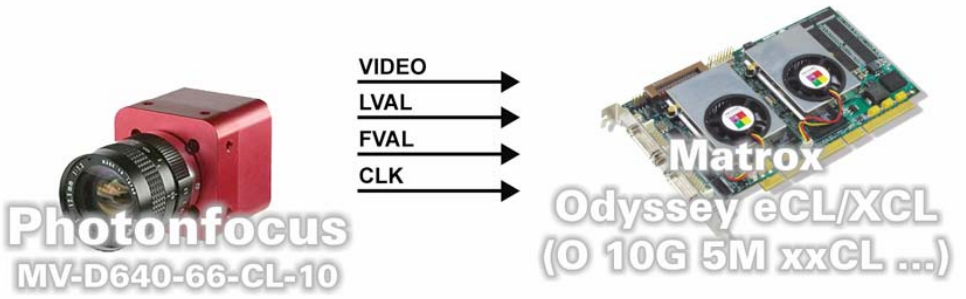
- Continuous (Free Running)
- Pseudo-continuous (Trigger)
- Asynchronous reset (Trigger)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 640 × 480 × 10-bit @ 200 fps.
- Camera Link BASE interface (10-bit, dual tap).
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 66 MHz) and video from camera.
- DCF used: MVD640_640x480_10bitCon.DCF



Mode 2: Pseudo-continuous

- 640 × 480 × 10-bit.
- Camera Link BASE interface (10-bit, dual tap).
- Matrox Odyssey eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate the exposure.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 66 MHz) and video from camera.
- DCF used: MVD640_640x480_10bitPcon.DCF

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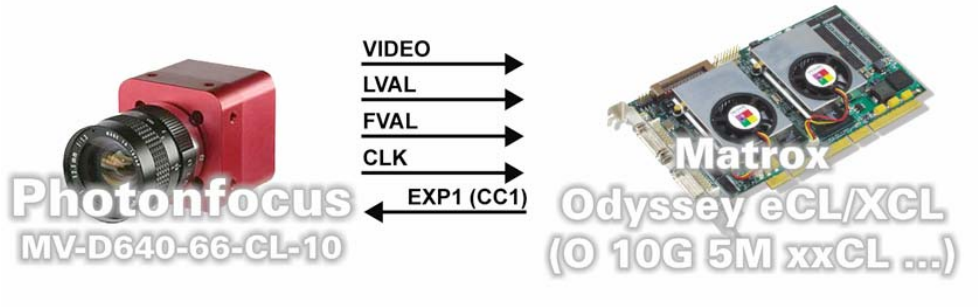
Basics about the interface modes

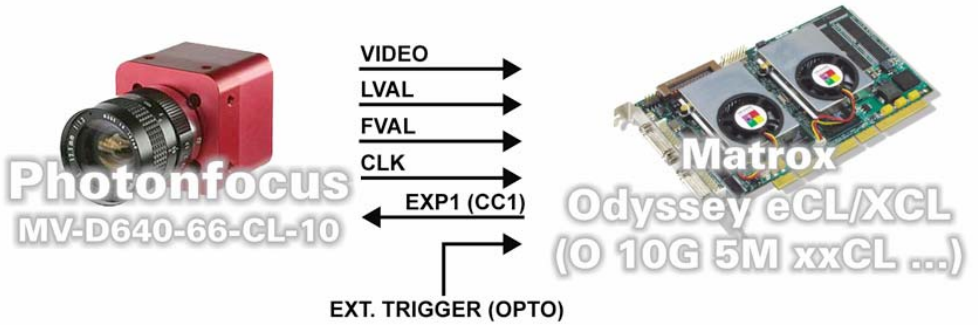
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- 640 × 480 × 10-bit.
- Camera Link BASE interface (10-bit, dual tap).
- Matrox Odyssey eCL/XCL receiving external trigger signal.
- Matrox Odyssey eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate the exposure.
- Matrox Odyssey eCL/XCL receiving LDV, FDV, CLK and video from camera.
- DCF used: MVD640_640x480_10bitAsync.DCF



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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 200 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.
- **Camera settings:** The camera mode is set to the following setting in the PFRemote utility. Refer to the camera manual for more information.

Mode	Setting
Trigger	Free Running
Output	10-bit
Special clock	FAST 66 MHz

Mode 2: Pseudo-continuous

- **Frame rate**: The frame rate is determined by the frequency of the EXPOSURE1 (CC1) signal.
- **Exposure time:** The rising edge of the EXPOSURE1 (CC1) signal initiates the camera's internal exposure time. To modify the exposure time, change 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 the following setting in the PFRemote utility. Refer to the camera manual for more information.

Mode	Setting
Trigger	External Trigger
Output	10-bit
Special clock	FAST 66 MHz

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 and the exposure time.
- **Exposure time:** The rising edge of the EXPOSURE1 (CC1) signal initiates the camera's internal exposure time. To modify the exposure time, change the **Exposure Time Field** setting in the PFRemote utility. Refer to the camera manual for more information.
- **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-continous

- **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	--

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