Matrox Odyssey eCL/XCL
Camera Interface Application Note
IMPERX IPX-11M5-L August 2, 2007

Basics about the camera

Camera Descriptions

- Effective resolution: 4000 × 2672 × 12-bit @ 4.5 fps.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 28 MHz pixel clock rate.

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

Interface Mode

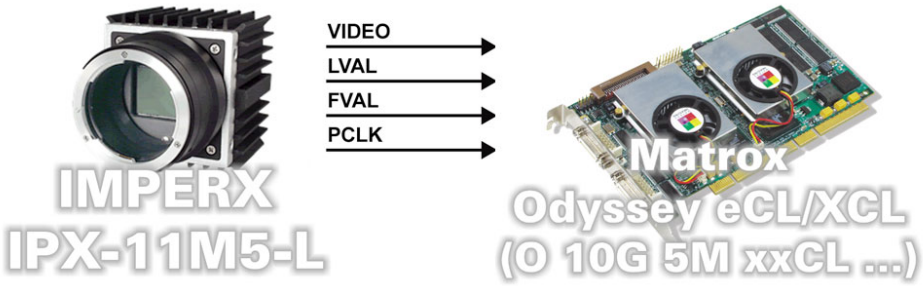
- Continuous
- Pseudo-continuous (External Trigger)
- Asynchronous reset (External Trigger)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 4000 × 2672 × 12-bit @ 4.5 fps.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: IPX11M5L_4000x2672_12bitCon.DCF



Mode 2: Pseudo-Continuous

- 4000 × 2672 × 12-bit.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Matrox Odyssey eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.

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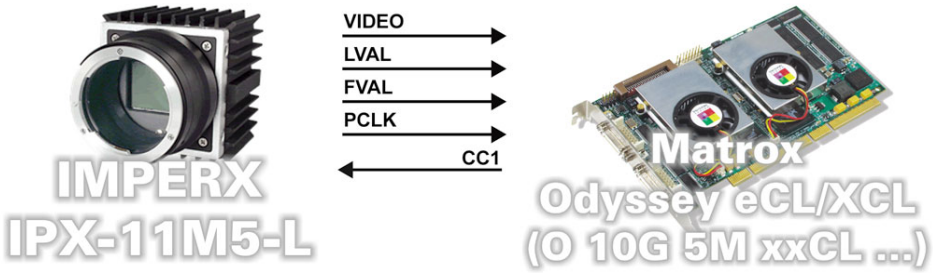
Basics about the interface modes

Camera Interface Briefs (cont.)

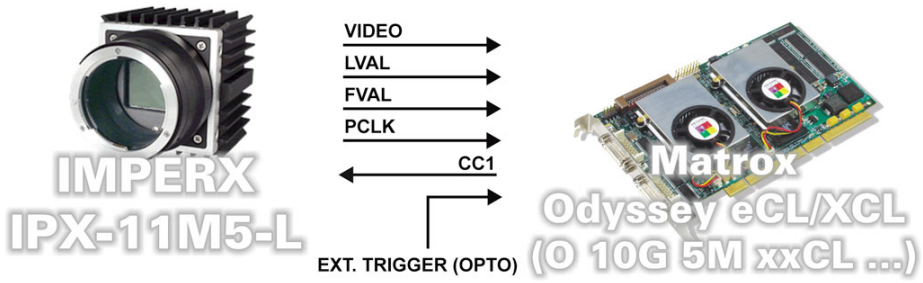
Mode 2: Pseudo-Continuous

- DCF used: IPX11M5L_4000x2672_12bitPcont.DCF



Mode 3: Asynchronous reset

- 4000 × 2672 × 12-bit.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Matrox Odyssey eCL/XCL receiving external trigger signal.
- Matrox Odyssey eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: IPX11M5L_4000x2672_12bitAsync.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 4.5 frames per second.
- **Exposure time:** Exposure time is set using the Imperx Lynx Camera Configuration Utility. Refer to the camera manual for commands description and usage.

Specifics about the interface modes

Camera Interface Details (cont.)

Mode 1: Continuous

- **Camera Configuration:** The camera mode is set as follows using the Imperx Lynx Camera Configuration Utility. Refer to the camera manual for details about the following controls and their usage.

Control	Setting
Depth	12bits
Taps	Dual
Trigger	OFF

Mode 2: Pseudo-Continuous

- **Frame rate**: The frame rate is determined by the frequency of the TIMER1 OUT (CC1) signal.
- **Exposure time:** The width (rising edge to falling edge) of the TIMER1 OUT (CC1) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam, ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera Configuration:** The camera mode is set as follows using the Imperx Lynx Camera Configuration Utility. Refer to the camera manual for details about the following controls and their usage.

Control	Setting
Depth	12bits
Taps	Dual
Trigger	CC
Mode	Standard
CC Exposure Control	Computer

Mode 3: Asynchronous Reset

- **Frame rate**: The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** Same as in Mode 2: Pseudo-continuous.
- **Bayer Color Filter:** Refer to *Mode 1: Continuous*.
- **Camera Configuration:** Same as in Mode 2: Pseudo-continuous.

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Cabling details for the interface modes

Cabling Requirements

Modes 1 and 2: Continuous, Pseudo-continuous

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

Mode 3: 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	←	LINE SIGNAL	--
OPTOTRIG -	02	←	LINE GROUND	--

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