Matrox Odyssey eCL/XCL
Camera Interface Application Note
REDLAKE MASD EP-16000 May 16, 2007

Basics about the camera

Camera Descriptions

- Effective resolution: 4872 × 3248 × 8/10/12-bit @ 3.2 fps.
- Camera Link BASE interface (Single tap).
- Bayer Color Filter.
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 30 MHz pixel clock rate.

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

Interface Mode

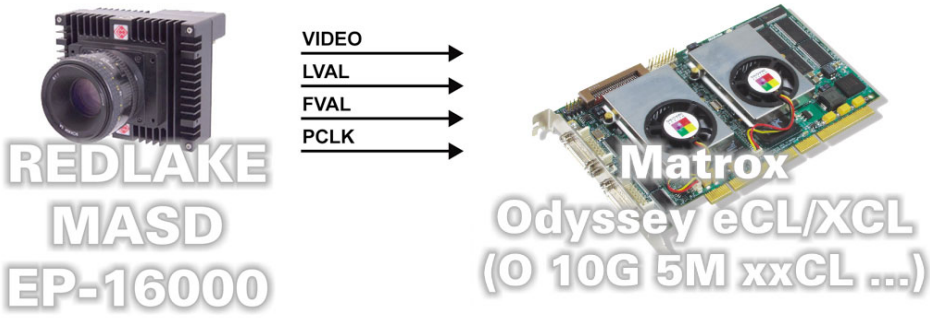
- Continuous (Free run)
- Pseudo-continuous (Level Controlled Trigger mode)
- Asynchronous reset (Level Controlled Trigger mode)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 4872 × 3248 × 8-bit @ 3.2 fps.
- Camera Link BASE interface (Single tap).
- Progressive scan.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: EP16000_4872x3248_8bitBayerCon.DCF



Mode 2: Pseudo-Continuous

- 4872 × 3248 × 8-bit.
- Camera Link BASE interface (Single 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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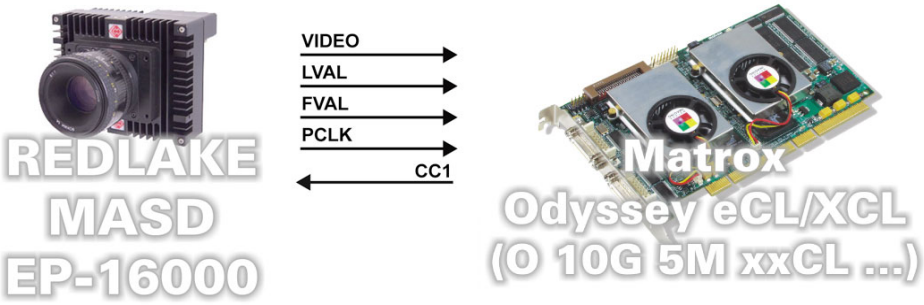
Basics about the interface modes

Camera Interface Briefs (cont.)

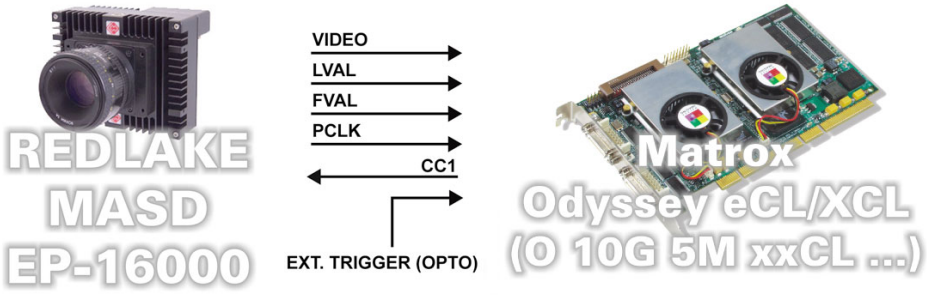
Mode 2: Pseudo-Continuous

- DCF used: EP16000_4872x3248_8bitBayerPcont.DCF



Mode 3: Asynchronous reset

- 4872 × 3248 × 8-bit.
- Camera Link BASE interface (Single 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: EP16000_4872x3248_8bitBayerAsync.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 3.2 frames per second.
- **Exposure time:** Exposure time is set using the shutter speed setting in the Camera Configuration Utility. Refer to the camera manual for more information.

Continued…

Specifics about the interface modes

Camera Interface Details (cont.)

Mode 1: Continuous

- **Bayer Color Filter:** Color information is generated by a Bayer color mosaic filter mounted on the sensor. Refer to the MIL online Help for information on using buffers with the Bayer color filter.
- **Camera control settings:** Using the MegaPlus II Central software, set the camera controls as follows:

Control	Setting
Output Data / Bit Depth	8 Bits
Mode selection	Trigger off – Free run

Mode 2: Pseudo-Continuous

- **Frame rate**: The frame rate is determined by the frequency of the TIMER1 OUT (CC1) signal.
- **Exposure time:** The width of the TIMER1 OUT (CC1) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam, with the ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Bayer Color Filter:** Refer to Mode 1: Continuous.
- **Camera control settings:** Using the MegaPlus II Central software, set the camera controls as follows:

Control	Setting
Output Data / Bit Depth	8 Bits
Mode selection	Level controlled (negative polarity)

Mode 3: Asynchronous Reset

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

Cabling details for the interface modes

Cabling Requirements

Modes 1 and 2: Continuous, Pseudo-continuous

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

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Cabling details for the interface modes

Cabling Requirements

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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