Matrox Odyssey eCL/XCL

Camera Interface Application Note

IMPERX IPX-16M3-L

January 24, 2011

Basics about the camera

Camera Descriptions

- Effective resolution: 4872 × 3248 × 12-bit @ 3 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

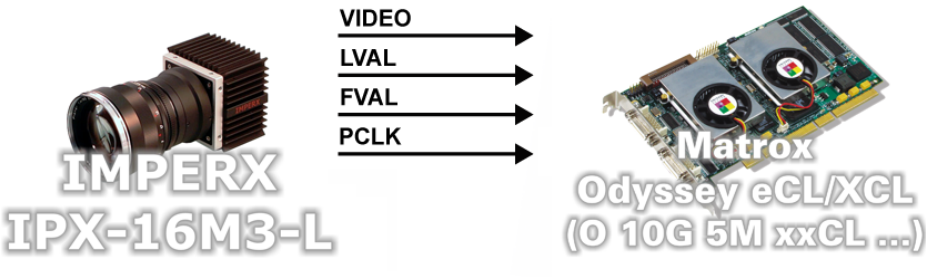
- Continuous (Free Running)
- Pseudo-continuous (External Trigger)
- Asynchronous reset (External Trigger)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 4872 × 3248 × 12-bit @ 3 fps.
- Camera Link BASE interface (Dual tap).
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, CLK and video from camera.
- DCF used: IPX16M3L_4872x3248_12bit2TapCon.DCF



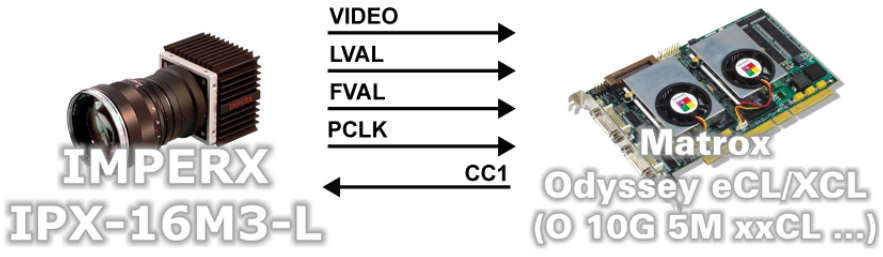
Mode 2: Pseudo-continuous

- 4872 × 3248 × 12-bit.
- Camera Link BASE interface (Dual tap).
- Matrox Odyssey eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure time.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, CLK and video from camera.
- DCF used: IPX16M3L_4872x3248_12bit2TapPcon.DCF

Basics about the interface modes

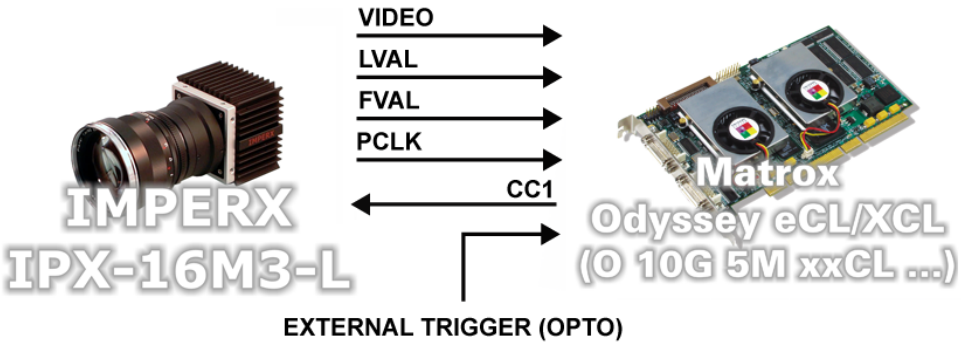
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- 4872 × 3248 × 12-bit.
- Camera Link BASE interface (Dual tap).
- Matrox Odyssey eCL/XCL receiving external OPTO 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, CLK and video from camera.
- DCF used: IPX16M3L_4872x3248_12bit2TapAsync.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 frames per second.
- **Exposure time:** Exposure time is set using the Imperx 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 Camera Configuration Utility. Refer to the camera manual for commands description and usage: Bit Depth = 12 bit | Output Mode = Dual tap | 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 exposure is determined by the active duration of TIMER1 OUT (CC1), 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 Bobcat Camera Configuration Utility. Refer to the camera manual for commands description and usage: Bit Depth = 12 bits | Output Mode = Dual Taps | Trigger = CC | Mode = Standard | CC Expose Control = Computer

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 configuration:** Refer to Mode 2: Pseudo-continuous.

Cabling details for the interface modes

Cabling Requirements

Mode 1 and 2: Continuous and Pseudo-continuous

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

Cabling details for the interface modes

Cabling Requirements (cont.)

Mode 3: Asynchronous Reset

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

EXTERNAL AUX. I/O BRACKET

(9-pin connector)			**External Trigger Source**	
PIN NAME		PIN NO.	PIN NAME	PIN NO.
OPTOTRIG +	07	←	LINE SIGNAL	--
OPTOTRIG -	02	←	LINE GROUND	--

Matrox Electronic Systems Ltd.
1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel: (514) 685-2630