Matrox Odyssey Xpro
Camera Interface Application Note
IMPERX IPX-2M30-LC February 10, 2009

Basics about the camera

Camera Descriptions

- Effective resolution: 1600 × 1200 × 12-bit @ 33 fps.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 40 MHz pixel clock rate.

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

Interface Mode

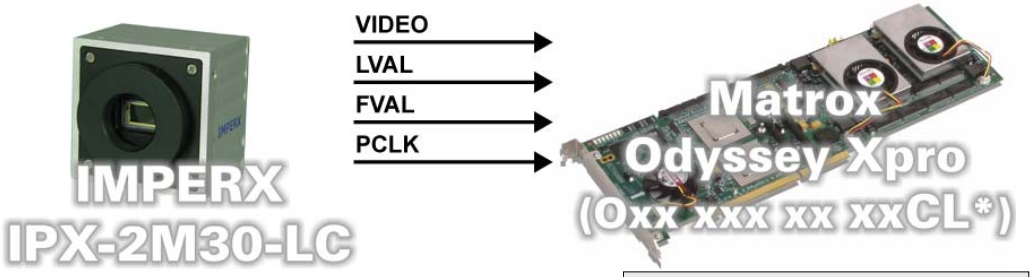
- Continuous
- Pseudo-continuous
- Asynchronous reset (Hardware trigger control, CC integration)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 1600 × 1200 × 12-bit @ 33 fps.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Matrox Odyssey Xpro receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: 2M30LC_1600x1200_12bitCon.DCF



***Matrox Odyssey Xpro main board with Camera Link frame grabber module**

Mode 2: Pseudo-Continuous

- 1600 × 1200 × 12-bit.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Matrox Odyssey Xpro sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.
- Matrox Odyssey Xpro receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: 2M30LC_1600x1200_12bitPcont.DCF

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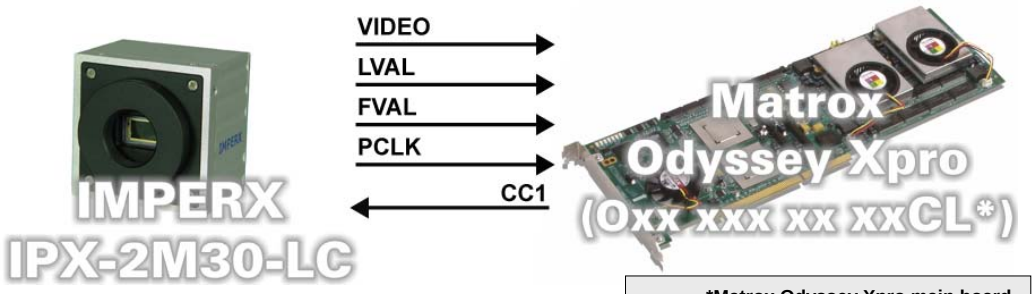
Basics about the interface modes

Camera Interface Briefs (cont.)

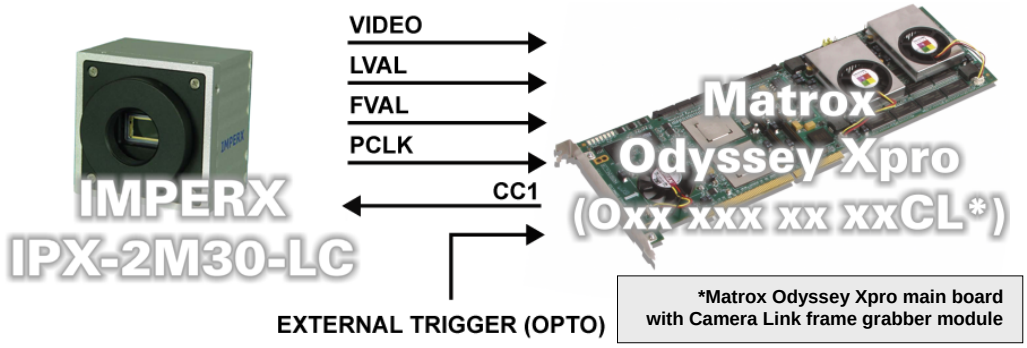
Mode 2: Pseudo-Continuous



*Matrox Odyssey Xpro main board with Camera Link frame grabber module

Mode 3: Asynchronous reset

- 1600 × 1200 × 12-bit.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Matrox Odyssey Xpro receiving external trigger signal.
- Matrox Odyssey Xpro sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.
- Matrox Odyssey Xpro receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: 2M30LC_1600x1200_12bitAsync.DCF



*Matrox Odyssey Xpro main board with Camera Link frame grabber module

Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Odyssey Xpro receives the continuous video from the camera at 33 frames per second.
- **Exposure time:** Exposure time is set using the **Set Shutter Time (sst)** command in Windows HyperTerminal. Refer to the camera manual for commands description and usage.

Continued…

Specifics about the interface modes

Camera Interface Details (cont.)

Mode 1: Continuous

- **Camera Configuration:** The camera mode is set as follows using Windows HyperTerminal. Refer to the camera manual for commands description and usage.

Command	Description
sst n	Set Shutter Time
sbd 12	Set Bit Depth
str OFF	Set Trigger Mode

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 Windows HyperTerminal. Refer to the camera manual for commands description and usage.

Command	Description
sci ON	Set CC Integration
sbd 12	Set Bit Depth
str CC F	Set Trigger Mode

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.
- **Camera Configuration:** Same as in 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 cable.

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Cabling details for the interface modes

Cabling Requirements (cont.)

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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