

Matrox Odyssey Xpro

Camera Interface Application Note

ADIMEC 4000m/D

April 16, 2008

Basics about the camera

Camera Descriptions

- Effective resolution: 2048 × 2048 × 10-bit @ 16 fps.
- Camera Link BASE interface (Dual channel).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 40 MHz pixel clock rate.

Interface Mode

- Continuous
- Pseudo-continuous
- Asynchronous reset (Control mode)

Camera Interface Briefs

Mode 1: Continuous

- 2048 × 2048 × 10-bit @ 16 fps.
- Camera Link BASE interface (Dual channel).
- Progressive scan.
- Matrox Odyssey Xpro receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [4000mD2048x2048_10bit2TapCon.DCF](#)



VIDEO
LDV
FDV
CLK



*Matrox Odyssey Xpro main board with Camera Link grab module

Mode 2: Pseudo-continuous

- 2048 × 2048 × 10-bit.
- Camera Link BASE interface (Dual channel).
- Progressive scan.
- Matrox Odyssey Xpro sending periodic EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving LDV, FDV, CLK and video signal from camera.

Continued

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

Basics about the interface modes

Matrox Odyssey Xpro

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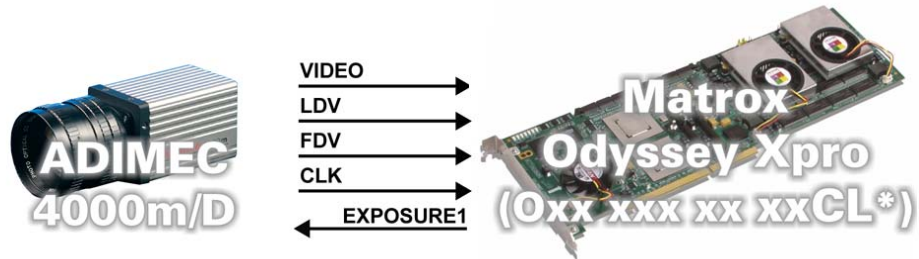
April 16, 2008

Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous

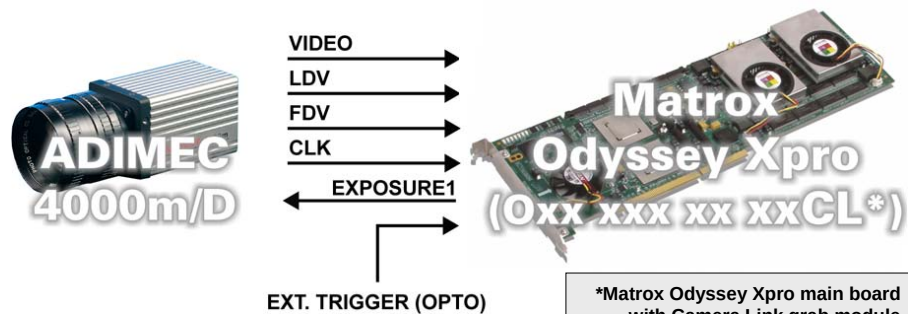
- DCF used: 4000mD2048x2048_10bit2TapPcon.DCF



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with Camera Link grab module

Mode 3: Asynchronous reset

- 2048 × 2048 × 10-bit.
- Camera Link BASE interface (Dual channel).
- Progressive scan.
- Matrox Odyssey Xpro receiving external trigger signal.
- Matrox Odyssey Xpro sending EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving LDV, FDV, CLK and video signal from camera.
- DCF used: 4000mD2048x2048_10bit2TapAsync.DCF



*Matrox Odyssey Xpro main board
with Camera Link grab 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 16 frames per second at full resolution.
- Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.

Continued

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Specifics about the
interface modes

Camera Interface Details (cont.)

Mode 1: Continuous

- **Camera Control Software settings:** Use ONL's imCamControl() or imDigControl() function, MIL's MdigControl() function, Adimec's configuration tool or Windows HyperTerminal to set the camera controls as follows:

Control	Setting
10 bit Output	@OR10
Continuous Mode	@MO4

Mode 2: Pseudo-continuous

- **Frame Rate/Exposure time:** The frame rate is determined by the EXPOSURE1 (CC1) setting in the DCF. Changing the frequency (delay period) will control the frame rate, while changing the width (falling edge to rising edge) of EXPOSURE1 (CC1) controls the frame rate as well as exposure time. The frame rate and exposure time can be modified using Matrox Intellicam, with the ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera Control Software settings:** Use ONL's imCamControl() or imDigControl() function, MIL's MdigControl() function, Adimec's configuration tool or Windows HyperTerminal to set the camera controls as follows:

Control	Setting
10 bit Output	@OR10
Control Mode	@MO5
Exposure Polarity	@EP1

Mode 3: Asynchronous reset

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (CC1) signal is the exposure time. The exposure time can be modified using Matrox Intellicam, ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera Control Software settings:** Same as Mode 2: Pseudo-continuous.

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*Cabling details for the
interface modes*

Cabling Requirements

Modes 1 and 2: Continuous and 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	←	SIGNAL	--
OPTOTRIG -	02	←	GROUND	--

The DCFs mentioned in this application note are also attached (embedded) to this PDF file – use the Adobe Reader's View File Attachment to access the DCF files. The information furnished by Matrox Electronics System, Ltd. is believed to be accurate and reliable. Please verify all interface connections with camera documentation or manual. Contact your local sales representative or Matrox Sales office or Matrox Imaging Applications at 514-822-6061 for assistance. © Matrox Electronic Systems Ltd, 2008-2011.

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