

Matrox Odyssey eCL/XCL

Camera Interface Application Note

PULNiX TMC-1320-15CL

September 29, 2006

*Basics about the
camera*

Camera Descriptions

- Effective resolution: 1300 × 1030 × 8-bit @ 15 fps.
- Camera Link BASE interface (single channel).
- Bayer Color Filter.
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 25 MHz pixel clock rate.

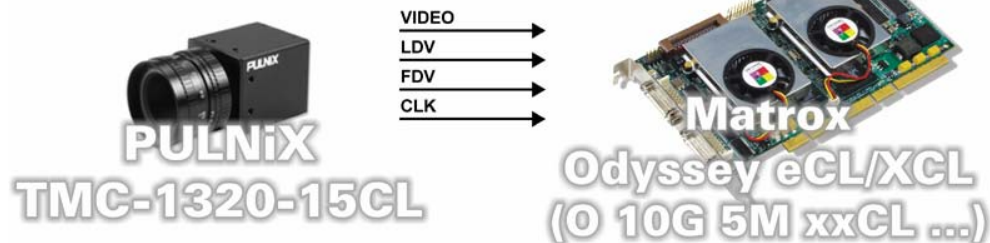
Interface Mode

- Continuous
- Pseudo-continuous
- Asynchronous reset (Pulse width control)

Camera Interface Briefs

Mode 1: Continuous

- 1300 × 1030 × 8-bit @ 15 fps.
- Camera Link BASE interface (single channel).
- Progressive scan.
- Matrox Odyssey eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [TMC132015CL1300x1030_8bitCon.DCF](#)



Mode 2: Pseudo-continuous

- 1300 × 1030 × 8-bit.
- Camera Link BASE interface (single channel).
- Progressive scan.
- Matrox Odyssey eCL/XCL sending periodic EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey eCL/XCL 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 eCL/XCL

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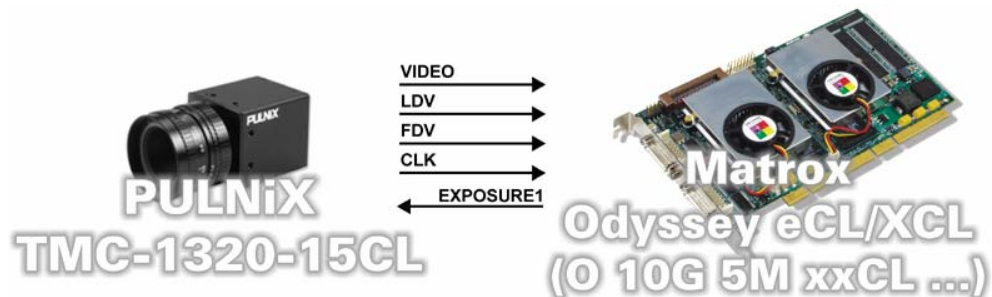
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Basics about the
interface modes

Camera Interface Briefs (cont.)

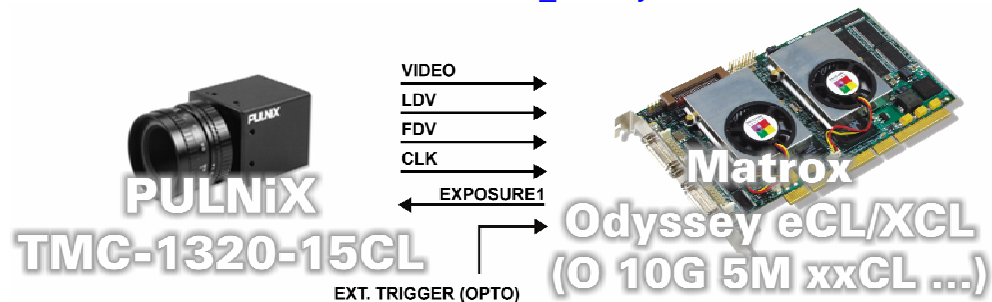
Mode 2: Pseudo-continuous

- DCF used: [TMC132015CL1300x1030_8bitPcon.DCF](#)



Mode 3: Asynchronous reset

- 1300 × 1030 × 8-bit.
- Camera Link BASE interface (single channel).
- Progressive scan.
- Matrox Odyssey eCL/XCL receiving external trigger signal.
- Matrox Odyssey eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [TMC132015CL1300x1030_8bitAsync.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 15 frames per second at full resolution.
- Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.
- Bayer Color Filter:** Color information is generated by a Bayer color mosaic filter mounted on the sensor. Refer to the MIL and ONL online Help for information on using buffers with the Bayer color filter.
- Camera Control Software settings:** Set the camera to **Continuous mode** using the PULNiX camera control software.

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*Specifics about the
interface modes*

Camera Interface Details (cont.)

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, ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Bayer Color Filter:** Refer to Mode 1: Continuous.
- **Camera Control Software settings:** Using the PULNiX camera control software, set the camera to:

Control	Setting
Shutter Mode	ASYN
Shutter Switch	9

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.
- **Bayer Color Filter:** Refer to Mode 1: Continuous.
- **Camera Control Software settings:** Same as Mode 2: Pseudo-continuous.

Cabling Requirements

Modes 1 and 2: Continuous and Pseudo-continuous

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

*Cabling details for the
interface modes*

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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	←	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, 2006-2011.

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