Matrox Odyssey eCL/XCL
Camera Interface Application Note
PULNiX TM-1400CL September 19, 2006

Basics about the camera

Camera Descriptions

- Effective resolution: 1392 × 1040 × 8-bit @ 30 fps.
- Camera Link BASE interface (Single tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 50 MHz pixel clock rate.

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

Interface Mode

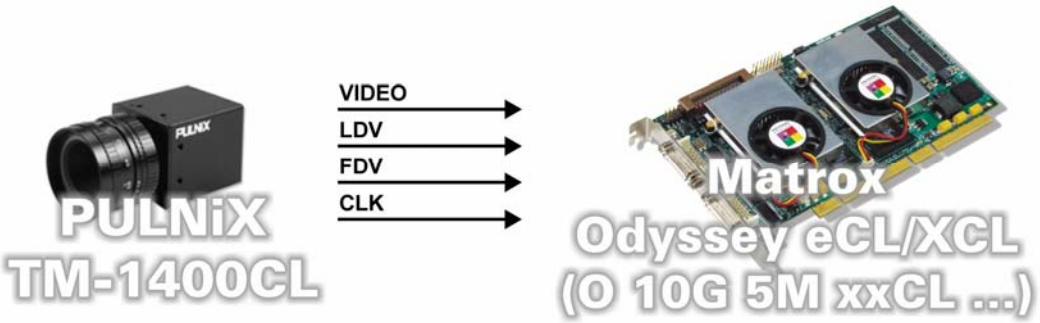
- Continuous
- Pseudo-continuous
- Asynchronous reset (Pulse width control)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 1392 × 1040 × 8-bit @ 30 fps.
- Camera Link BASE interface (Single tap).
- Progressive scan.
- Matrox Odyssey eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: TM1400CL1392x1040Con.DCF



Mode 2: Pseudo-continuous

- 1392 × 1040 × 8-bit.
- Camera Link BASE interface (Single tap).
- 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.
- DCF used: TM1400CL1392x1040Pcon.DCF

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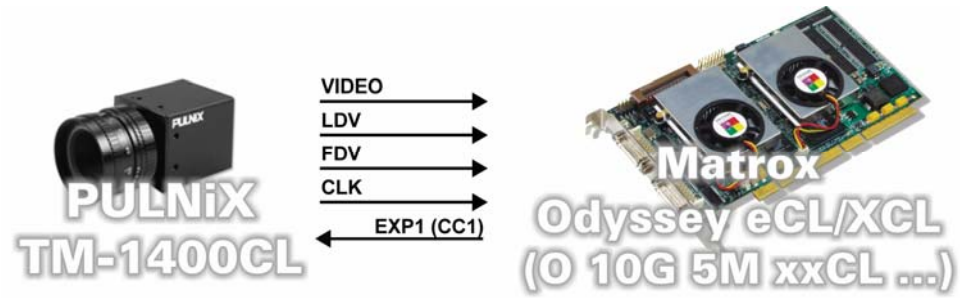
Basics about the interface modes

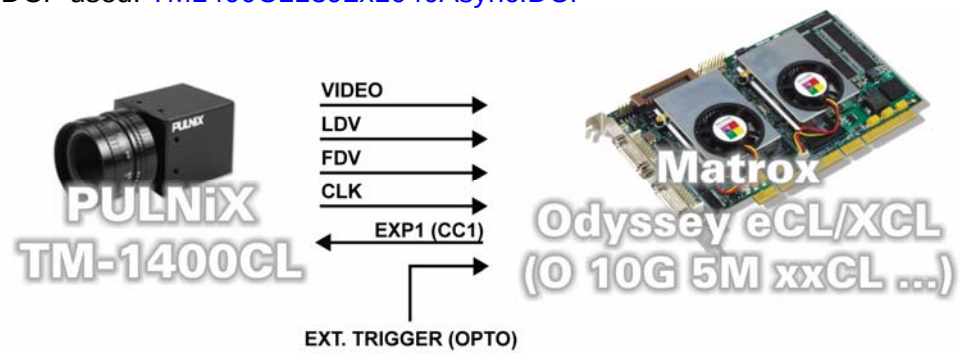
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- 1392 × 1040 × 8-bit.
- Camera Link BASE interface (Single tap).
- 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: TM1400CL1392x1040Async.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 30 frames per second.
- **Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.
- **Camera control settings:** Use the PULNiX camera control software to set the camera to **Continuous** mode as follows:

Control	Setting
Shutter Mode	Manual
Shutter Switch	0 (default)

Specifics about the interface modes

Camera Interface Details (cont.)

Mode 2: Pseudo-continuous

- **Frame Rate and Exposure Time:** 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) will control 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 settings:** Use the PULNiX camera control software to set the camera to **Pulse Width Async Shutter** mode as follows:

Control	Setting
Shutter Mode	ASYNC (external pulse width)
Shutter Switch	9

Mode 3: Asynchronous reset

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal as well as the width (falling edge to rising edge) of EXPOSURE1 (CC1).
- **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 settings:** Use the PULNiX camera control software to set the camera to **Pulse Width Async Shutter** mode as follows:

Control	Setting
Shutter Mode	ASYNC (external pulse width)
Shutter Switch	9

Cabling details for the interface modes

Cabling Requirements

Modes 1 and 2: Continuous and Pseudo-continuous

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

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	--

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