Matrox Odyssey Xpro
Camera Interface Application Note
PULNiX TM-1325CL August 21, 2003

Basics about the camera

Camera Descriptions

- Effective resolution: 1390 × 1040 × 8-bit @ 15/30 fps (maximum).
- Camera Link BASE interface (single channel).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 25/50 MHz pixel clock rate.

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

Interface Mode

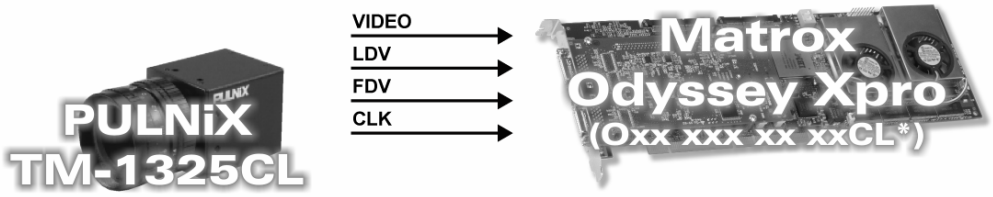
- Continuous
- Pseudo-continuous
- Asynchronous reset (Pulse width control)

Basics about the interface modes

Camera Interface Briefs

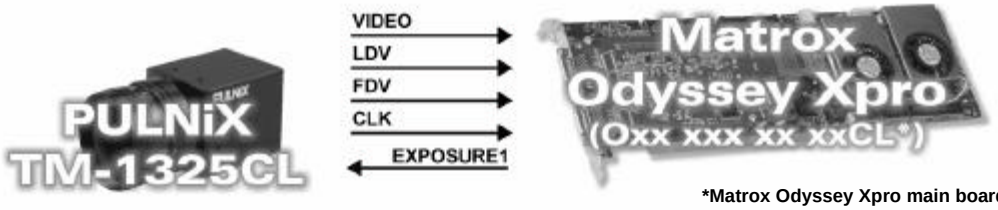
Mode 1: Continuous

- 1390 × 1040 × 8-bit @ 30 fps.
- Camera Link BASE interface (single channel).
- Progressive scan.
- Matrox Odyssey Xpro receiving LDV, FDV, CLK and video signal from camera.
- DCF used: TM1325CL1390x1040_8bitCon.DCF



Mode 2: Pseudo-continuous

- 1390 × 1040 × 8-bit.
- Camera Link BASE interface (single 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.
- DCF used: TM1325CL1390x1040_8bitPcon.DCF



***Matrox Odyssey Xpro main board with Camera Link grab module**

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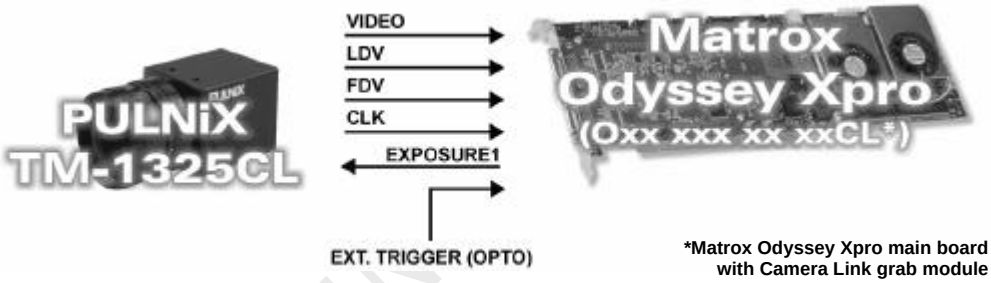
Basics about the interface modes

Camera Interface Briefs (cont.)

Mode 3: Asynchronous reset

- 1390 × 1040 × 8-bit.
- Camera Link BASE interface (single 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: TM1325CL1390x1040_8bitAsync.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 30 frames per second at full resolution.
- **Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.
- **Camera Control Software settings:** Shutter mode and Scan mode set to No Shutter and 30 FPS respectively. Camera Control Software version 3.2 or higher can be used.

Mode 2: Pseudo-continuous

- **Frame Rate:** For this DCF, the Matrox Odyssey Xpro receives the pseudo-continuous video from the camera at about 22 frames per second (22.35 Hz) for full resolution.
- **Exposure time:** Exposure time is determined by the inactive period of Timer1 setting in the DCF. It is recommended that the active period of Timer1 be set to greater than one frame duration (**35.8 ms**).The default exposure time in this DCF is **7 ms**, which 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:** Shutter mode and Scan mode set to Async and 30 FPS respectively. Shutter switch set to 9 or EXT.PW CONTROL. Camera Control Software version 3.2 or higher can be used.

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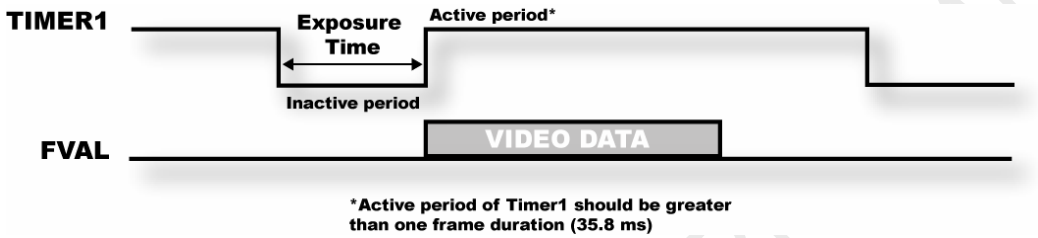
Specifics about the interface modes

Camera Interface Details (cont.)

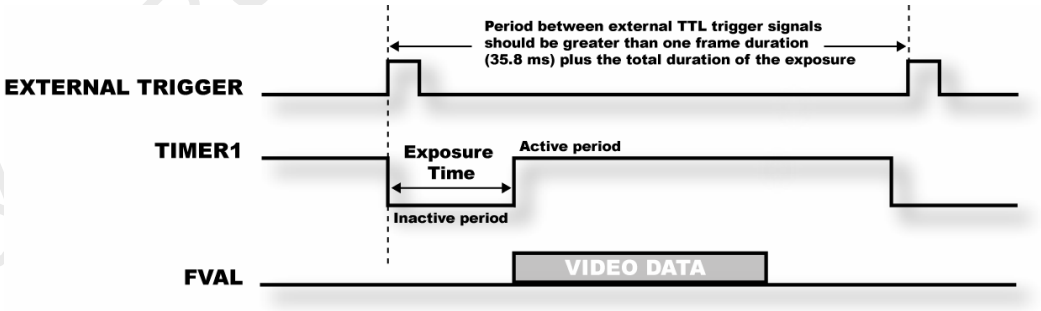
Mode 2: Pseudo-continuous

- **Timings diagram:**



Mode 3: Asynchronous reset

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal. The period between external TTL trigger signals must be larger than the total duration of the exposure time (inactive period of Timer1) plus the time for one frame (**> 35.8 ms**).
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (CC1) signal is the exposure time. The default exposure time in this DCF is **7 ms**, which 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:** Shutter mode and Scan mode set to Async and 30 FPS respectively. Shutter switch set to 9 or EXT.PW CONTROL. Camera Control Software version 3.2 or higher can be used.
- **Timings diagram:**



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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