Matrox Odyssey Xpro

Camera Interface Application Note

JAI CM-200MCL

November 8, 2007

Basics about the camera

Camera Descriptions

- Effective resolution: 1620 × 1236 × 10-bit @ 25 fps.
- Camera Link BASE interface (Single tap).
- Progressive scan.
- Internal sync.
- Internal exposure control.
- 65 MHz pixel clock rate.

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

Interface Mode

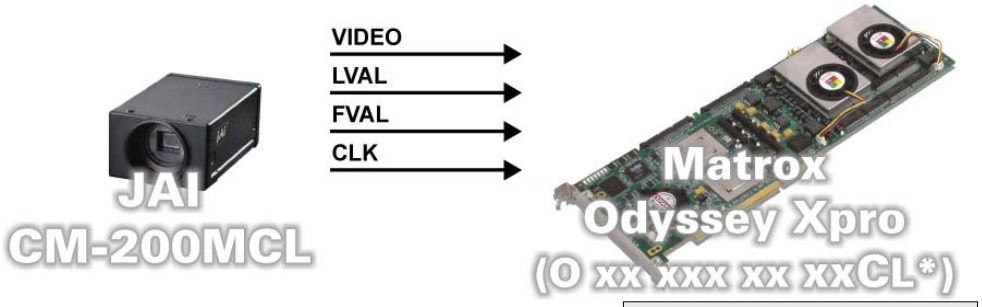
- Continuous (Normal Trigger mode)
- Pseudo-continuous (Pulse Width Control)
- Asynchronous reset (Pulse Width Control)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 1620 × 1236 × 10-bit @ 25 fps.
- Camera Link BASE interface (Single tap).
- Matrox Odyssey Xpro receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 65 MHz) and video from camera.
- DCF used: CM-200MCL_1620x1236_10bitCon.DCF



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

Mode 2: Pseudo-continuous

- 1620 × 1236 × 10-bit.
- Camera Link BASE interface (Single tap).
- Matrox Odyssey Xpro sending TIMER1 OUT (CC1) signal to camera to initiate the exposure.
- Matrox Odyssey Xpro receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 65 MHz) and video from camera.
- DCF used: CM-200MCL_1620x1236_10bitPcon.DCF

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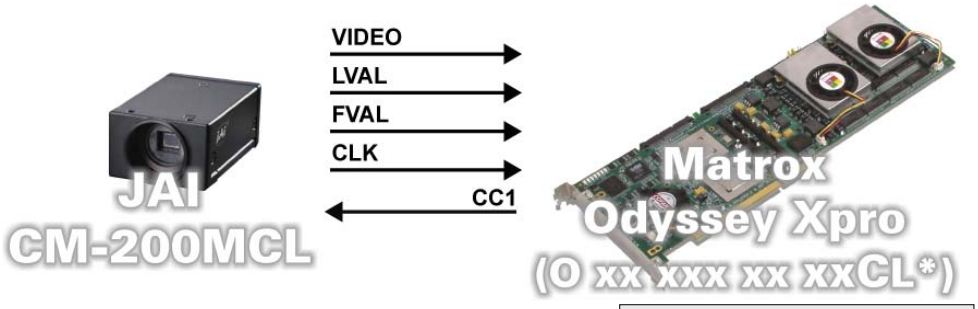
Basics about the interface modes

Camera Interface Briefs (cont.)

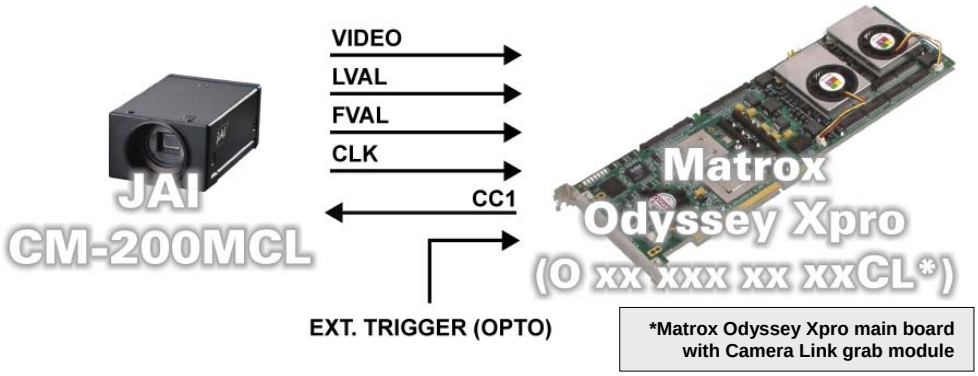
Mode 2: Pseudo-continuous



*Matrox Odyssey Xpro main board with Camera Link grab module

Mode 3: Asynchronous Reset

- 1620 × 1236 × 10-bit.
- Camera Link BASE interface (Single tap).
- Matrox Odyssey Xpro receiving external trigger signal.
- Matrox Odyssey Xpro sending TIMER1 OUT (CC1) signal to camera to initiate the exposure.
- Matrox Odyssey Xpro receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 65 MHz) and video from camera.
- DCF used: CM-200MCL_1620x1236_10bitAsync.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 receives the continuous video from the camera at 25 frames per second.
- **Exposure time:** Exposure time is set using the integration time setting in the Camera Configuration utility. Refer to the camera manual for more information.

Specifics about the interface modes

Camera Interface Details (cont.)

Mode 1: Continuous

- **Camera control settings:** Using the JAI Camera Configuration Tool, set the camera controls as follows:

Control	Setting
Trigger Mode	Normal (Continuous)

Mode 2: Pseudo-continuous

- **Frame rate**: The frame rate is determined by the frequency of the TIMER1 OUT (CC1) signal.
- **Exposure time:** The Active Duration of the TIMER1 OUT (CC1) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam, with the ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera control settings:** Using the JAI Camera Configuration Tool, set the camera controls as follows:

Control	Setting
Trigger Mode	PWC (Pulse Width Control)
Trigger Polarity	Active Low
Trigger Input	Camera Link

Mode 3: Asynchronous Reset

- **Frame rate**: The frame rate is determined by the frequency of the external trigger signal. The period between the external trigger signals must be larger than the frame readout period (40 ms) plus the exposure time.
- **Exposure time:** Refer to Mode 2: Pseudo-continuous.
- **Camera settings:** Refer to Mode 2: Pseudo-continuous.

Cabling details for the interface modes

Cabling Requirements

Mode 1 and 2: Continuous, Pseudo-continuous

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

Cabling details for the interface modes

Cabling Requirements (cont.)

Mode 3: Asynchronous reset

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