

# Matrox Odyssey eCL/XCL

## Camera Interface Application Note

### JAI CM-200MCL

November 8, 2007

Basics about the  
camera

#### Camera Descriptions

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

#### Interface Mode

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

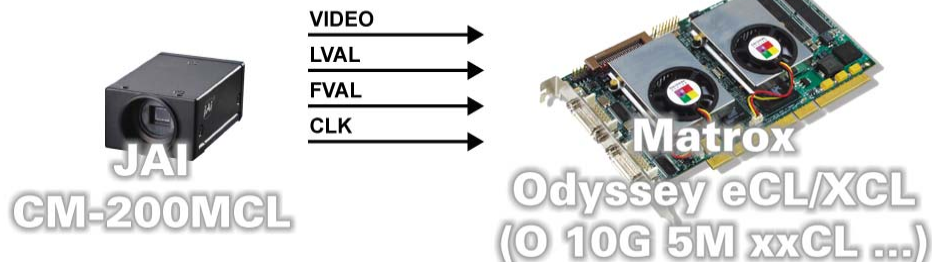
Mode of operations as  
per Matrox Imaging (in  
parentheses as per  
camera manufacturer)

Basics about the  
interface modes

#### Camera Interface Briefs

##### Mode 1: Continuous

- $1620 \times 1236 \times 10\text{-bit}$  @ 25 fps.
- Camera Link BASE interface (Single tap).
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 65 MHz) and video from camera.
- DCF used: [CM-200MCL\\_1620x1236\\_10bitCon.DCF](#)



##### Mode 2: Pseudo-continuous

- $1620 \times 1236 \times 10\text{-bit}$ .
- Camera Link BASE interface (Single tap).
- Matrox Odyssey eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate the exposure.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 65 MHz) and video from camera.
- DCF used: [CM-200MCL\\_1620x1236\\_10bitPcon.DCF](#)

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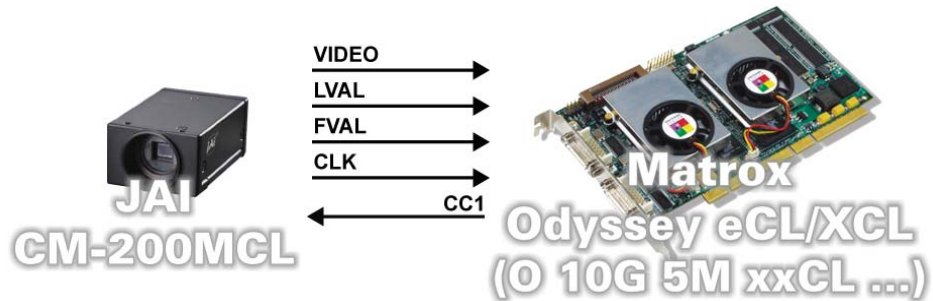
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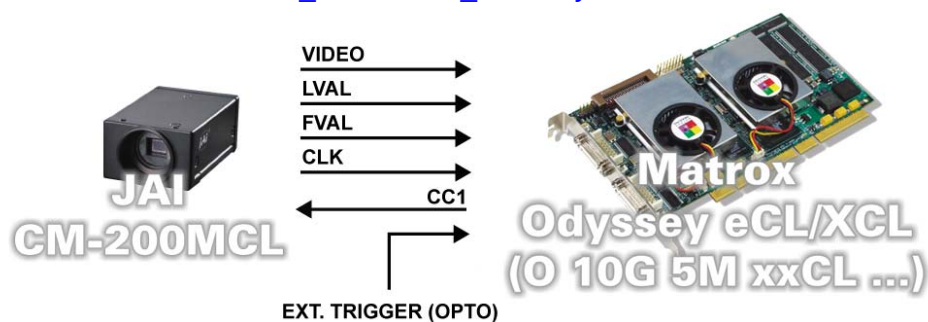
#### Camera Interface Briefs (cont.)

##### Mode 2: Pseudo-continuous



##### Mode 3: Asynchronous Reset

- 1620 × 1236 × 10-bit.
- Camera Link BASE interface (Single tap).
- Matrox Odyssey eCL/XCL receiving external trigger signal.
- Matrox Odyssey eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate the exposure.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 65 MHz) and video from camera.
- DCF used: [CM-200MCL\\_1620x1236\\_10bitAsync.DCF](#)



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.

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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 Requirements

##### Mode 1 and 2: Continuous, Pseudo-continuous

- **Cable and Connection:** Mini 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:** 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 | -- |

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, 2007-2011.

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