

# Matrox Solios eCL/XCL

## Camera Interface Application Note

### PCO pco.1600

September 30, 2008

Basics about the  
camera

#### Camera Descriptions

- Effective resolution:  $1600 \times 1200 \times 16\text{-bit}$  @ 4.8 fps.
- Camera Link BASE interface (Single Tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 40 MHz pixel clock rate.

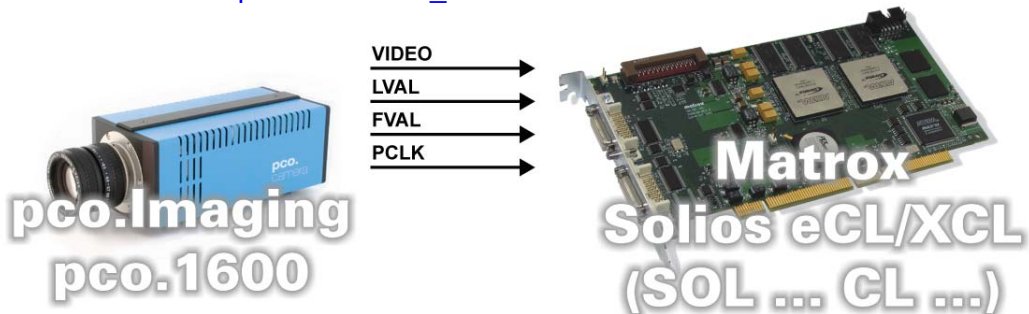
#### Interface Mode

- Continuous
- Pseudo-continuous (External Exp Ctrl)
- Asynchronous reset (External Exp Ctrl)

#### Camera Interface Briefs

##### Mode 1: Continuous

- $1600 \times 1200 \times 16\text{-bit}$  @ 4.8 fps.
- Camera Link BASE interface (Single Tap).
- Progressive scan.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.
- DCF used: [pco1600x1200\\_16bitCon.DCF](#)



##### Mode 2: Pseudo-continuous

- $1600 \times 1200 \times 16\text{-bit}$ .
- Camera Link BASE interface (Single Tap).
- Progressive scan.
- Matrox Solios eCL/XCL sending periodic TIMER1 OUT (CC1) signal to camera to initiate and control exposure time.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.

Continued...

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

Basics about the  
interface modes

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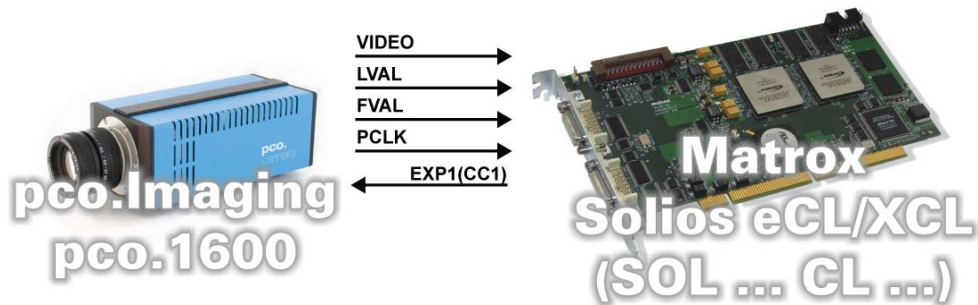
September 30, 2008

Basics about the  
interface modes

#### Camera Interface Briefs (cont.)

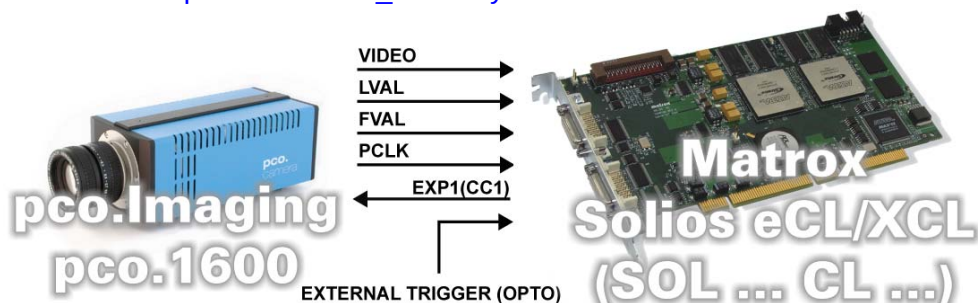
##### Mode 2: Pseudo-continuous

- DCF used: [pco1600x1200\\_16bitPcon.DCF](#)



##### Mode 3: Asynchronous reset

- 1600 × 1200 × 16-bit.
- Camera Link BASE interface (Single Tap).
- Progressive scan.
- Matrox Solios eCL/XCL receiving external trigger signal.
- Matrox Solios eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate and control exposure time.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.
- DCF used: [pco1600x1200\\_16bitAsync.DCF](#)



Specifics about the  
interface modes

#### Camera Interface Details

##### Mode 1: Continuous

- Frame Rate:** Matrox Solios eCL/XCL receives the continuous video from the camera at 4.8 frames per second.
- Exposure time:** Exposure time is set using the method described in the Camera Configuration Utility. Refer to the camera manual for more information.
- Camera control settings:** The camera mode is set in the Camera Configuration Utility. Refer to the camera manual for more information.

|                |                                        |
|----------------|----------------------------------------|
| Trigger Mode   | Auto Sequence Enable Continuous Output |
| Transfer Clock | 40000000 Hz Single Tap 16 bit          |

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## Camera Interface Application Note

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Specifics about the  
interface modes

### Camera Interface Details (cont.)

#### Mode 2: Pseudo-continuous

- **Frame rate:** The frame rate is determined by the frequency of the TIMER1 OUT (CC1) signal.
- **Exposure time:** The width of the TIMER1 OUT (CC1) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera control settings:** The camera mode is set in the Camera Configuration Utility. Refer to the camera manual for more information.

|                |                                                         |
|----------------|---------------------------------------------------------|
| Trigger Mode   | External Exp Ctrl CC1 Exp Trig Enable Continuous Output |
| Transfer Clock | 40000000 Hz Single Tap 16 bit                           |

#### Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** Same as in Mode 2: Pseudo-continuous.
- **Camera Configuration:** Same as in Mode 2: Pseudo-continuous.

### Cabling Requirements

#### Modes 1 and 2: Continuous and Pseudo-continuous

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

#### Mode 3: Asynchronous reset

- **Cable and Connection:** Standard Camera Link cable.
- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector on the Expanded I/O adapter bracket.

#### EXPANDED I/O BRACKET (9-pin connector)

|            |    |   | External Trigger Source |    |
|------------|----|---|-------------------------|----|
| OPTOTRIG + | 07 | ← | SIGNAL                  | -- |
| OPTOTRIG - | 02 | ← | GROUND                  | -- |

Cabling details for the  
interface modes

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 Electronic Systems, 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, 2008-2011.

#### Matrox Electronic Systems Ltd.

1055 St. Regis Blvd.  
Dorval, Quebec H9P 2T4  
Canada  
Tel: (514) 685-2630  
Fax: (514) 822-6273  
SOL-CID-079

