

Matrox Solios eCL/XCL

Camera Interface Application Note

COHU 7712-2002

November 7, 2007

Basics about the
camera

Camera Descriptions

- Effective resolution: $1004 \times 1004 \times 10\text{-bit}$ @ 30 fps.
- Camera Link BASE interface (Single channel).
- Progressive scan.
- Internal sync.
- Internal exposure control.
- 40 MHz pixel clock rate.

Interface Mode

- Continuous (Free running)
- Pseudo-continuous
- Asynchronous rest

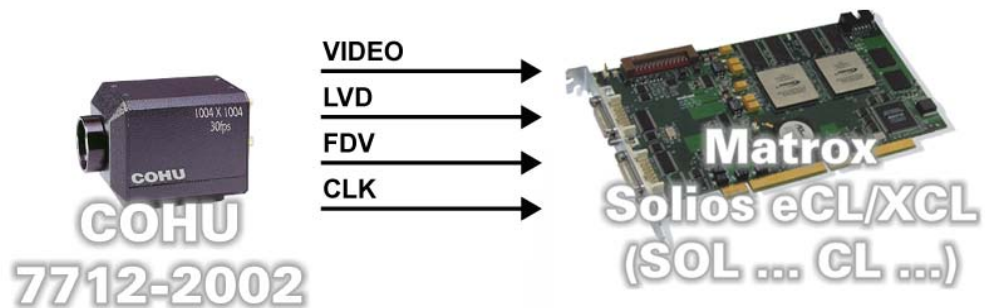
Mode of operations as
per Matrox Imaging (in
parentheses as per
camera manufacturer)

Basics about the
interface modes

Camera Interface Briefs

Mode 1: Continuous

- $1004 \times 1002 \times 10\text{-bit}$ @ 30 fps.
- Camera Link BASE interface (Single channel).
- Progressive scan.
- Matrox Solios eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [7712-2002_1004x1002_10bitCon.DCF](#)



Mode 2: Pseudo-continuous

- $1004 \times 1002 \times 10\text{-bit}$ @ 30 fps.
- Camera Link BASE interface (Single channel).
- Progressive scan.
- Matrox Solios eCL/XCL sending periodic EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Solios eCL/XCL receiving LDV, FDV, CLK and video from camera.

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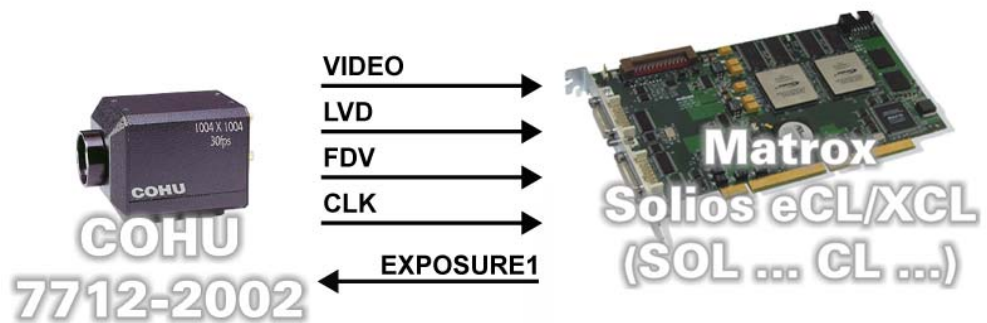
November 7, 2007

Basics about the
interface modes

Camera Interface Briefs (cont.)

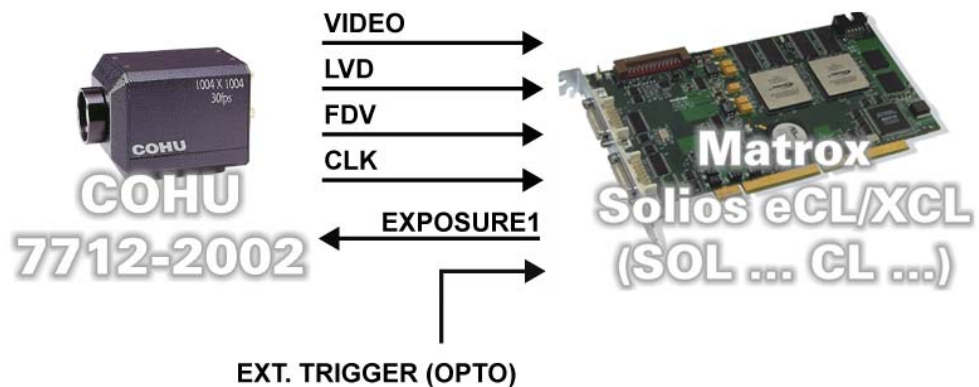
Mode 2: Pseudo-continuous

- DCF used: [7712-2002_1004x1002_10bitPcon.DCF](#)



Mode 3: Asynchronous reset

- $1004 \times 1002 \times 10$ -bit.
- Camera Link BASE interface (Single tap).
- Progressive scan.
- Matrox Solios eCL/XCL receiving external trigger signal.
- Matrox Solios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Solios eCL/XCL receiving LDV, FDV, CLK and video from camera.
- DCF used: [7712-2002_1004x1002_10bitAsync.DCF](#)



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*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 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:** To set the camera controls, compile and use the Matrox Imaging camera control application*. Refer to the respective manual for more information about camera controls.

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 or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera control settings:** To set the camera controls, compile and use the Matrox Imaging camera control application*. Refer to the respective manual for more information about camera controls.

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 or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera control settings:** To set the camera controls, compile and use the Matrox Imaging camera control application*. Refer to the respective manual for more information about camera controls.

* Note that the Matrox Imaging camera control application is available for download from the Matrox Imaging FTP site or as an attachment in this PDF document (Adobe Reader 7.x and higher).

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Cabling details for the
interface modes

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 (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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SOL-CID-070

