

Matrox Solios eCL/XCL

Camera Interface Application Note

REDLAKE MASD ES-2093C

April 30, 2007

Basics about the
camera

Camera Descriptions

- Effective resolution: 1920 × 1080 × 8/10/12-bit @ 30 fps.
- Camera Link BASE interface (Single tap).
- RGB Progressive scan.
- Internal sync.
- External or internal exposure control.
- 30 MHz pixel clock rate.

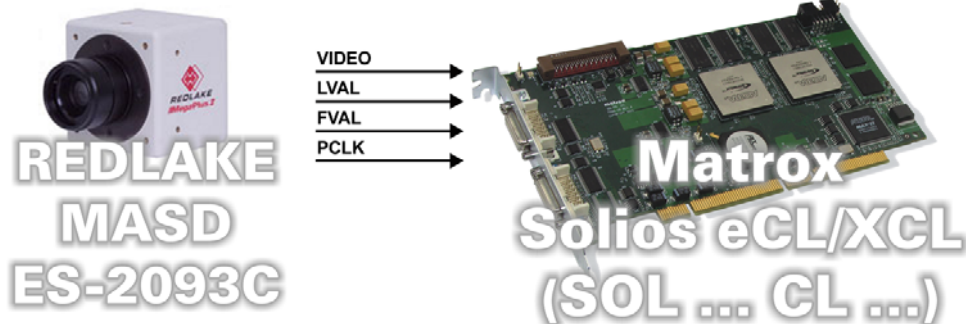
Interface Mode

- Continuous (Free run)
- Pseudo-continuous (Level Controlled Trigger mode)
- Asynchronous reset (Level Controlled Trigger mode)

Camera Interface Briefs

Mode 1: Continuous

- 1920 × 1080 × 8-bit @ 30 fps.
- Camera Link BASE interface (Single tap).
- RGB Progressive scan.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: [ES2093C_1920x1080_8bitRGBCon.DCF](#)



Mode 2: Pseudo-Continuous

- 1920 × 1080 × 8-bit.
- Camera Link BASE interface (Single tap).
- RGB Progressive scan.
- Matrox Solios eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.

Continued...

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

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interface modes

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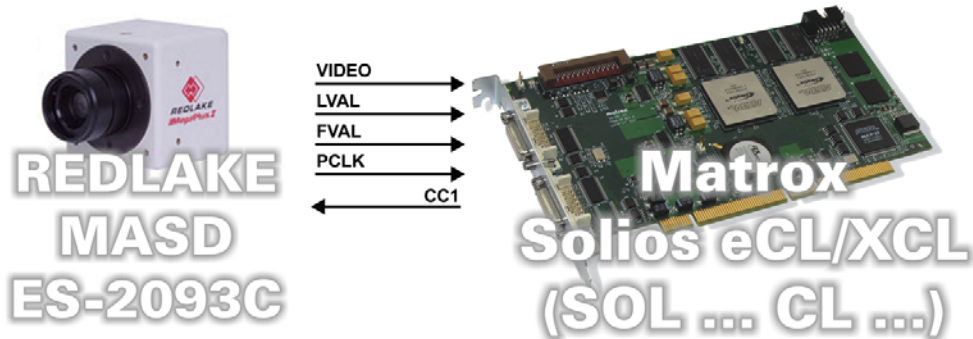
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Basics about the
interface modes

Camera Interface Briefs (cont.)

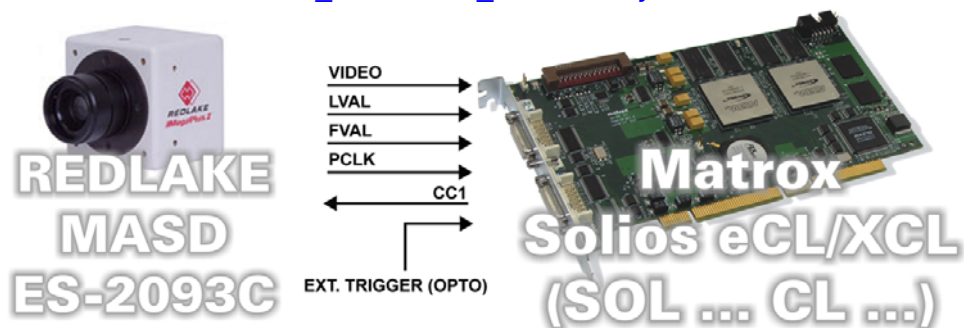
Mode 2: Pseudo-Continuous

- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: [ES2093C_1920x1080_8bitRGBPcont.DCF](#)



Mode 3: Asynchronous reset

- 1920 × 1080 × 8-bit.
- Camera Link BASE interface (Single tap).
- RGB 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 the exposure.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: [ES2093C_1920x1080_8bitRGBAsync.DCF](#)



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*Specifics about
the interface modes*

Camera Interface Details (cont.)

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 set using the shutter speed setting in the Camera Configuration Utility. Refer to the camera manual for more information.
- **Camera control settings:** Using the MegaPlus II Central software, set the camera controls as follows:

Control	Setting
Output Data / Bit Depth	8 Bits
Mode selection	Trigger off – Free run

Mode 2: Pseudo-Continuous

- **Frame rate:** The frame rate is determined by the frequency of the TIMER1 OUT (CC1) signal.
- **Exposure time:** The width (rising to falling) 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:** Using the MegaPlus II Central software, set the camera controls as follows:

Control	Setting
Output Data / Bit Depth	8 Bits
Mode selection	Mode 1, Trigger mode: Level controlled (negative polarity)

Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** Refer to Mode 2: Pseudo-Continuous.
- **Camera Configuration:** Refer to Mode 2: Pseudo-Continuous.

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Cabling details for the
interface modes

Cabling Requirements (cont.)

Modes 1 and 2: Continuous, Pseudo-continuous

Cable and Connection: Standard Camera Link.

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	←	LINE SIGNAL --
OPTOTRIG -	02	←	LINE 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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