Matrox Solios eCL/XCL
Camera Interface Application Note
REDLAKE MASD ES-2020 May 16, 2007

asics about the camera

Camera Descriptions

- Effective resolution: 1600 × 1200 × 12-bit @ 30 fps.
- Camera Link BASE interface (Single tap).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 38 MHz pixel clock rate.

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

Interface Mode

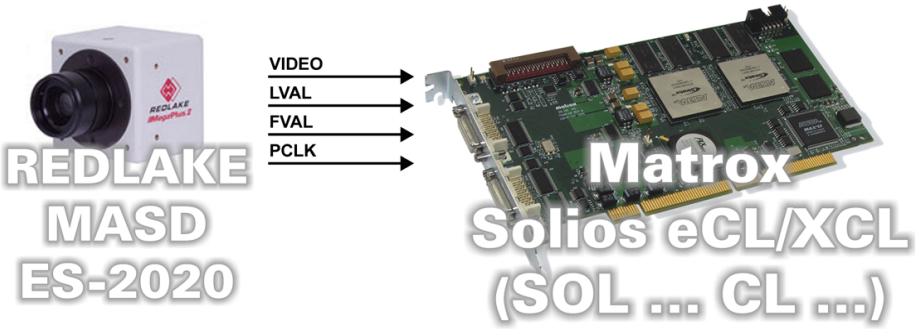
- Continuous (Free run)
- Pseudo-continuous (Level controlled trigger mode)
- Asynchronous reset (Level controlled trigger mode)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 1600 × 1200 × 12-bit @ 30 fps.
- Camera Link BASE interface (Single tap).
- Progressive scan.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: ES2020_1600x1200_12bitCon.DCF
- DCF used: ES2020_800x600_12bitBinCon.DCF (Binning 2x2)



Mode 2: Pseudo-Continuous

- 1600 × 1200 × 12-bit @ 30 fps.
- Camera Link BASE interface (Single tap).
- Progressive scan.
- 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: ES2020_1600x1200_12bitPcon.DCF

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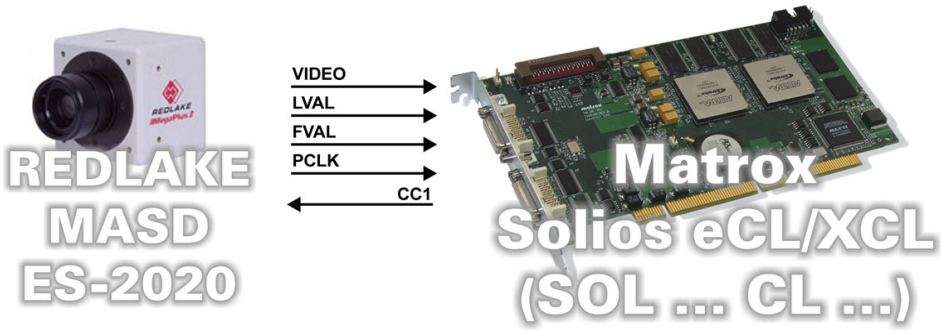
Basics about the interface modes

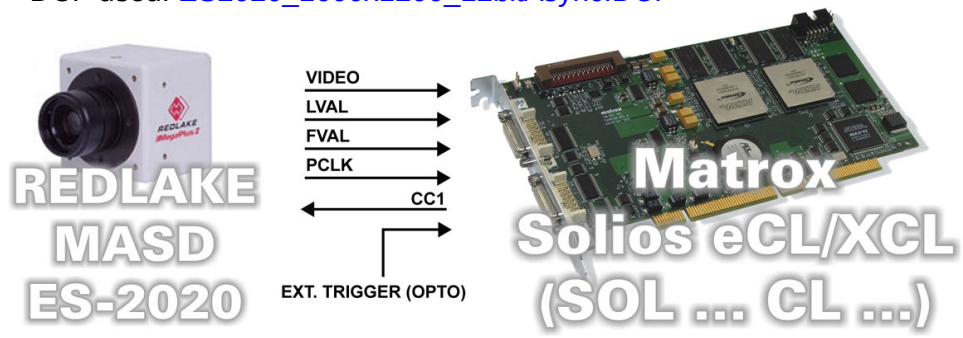
Camera Interface Briefs (cont.)

Mode 2: Pseudo-Continuous



Mode 3: Asynchronous reset

- 1600 × 1200 × 12-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 the exposure.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: ES2020_1600x1200_12bitAsync.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 30 fps for regular mode 52.95 fps for Binning 2x2 mode.
- **Exposure time:** Exposure time is set using the shutter speed 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 MegaPlus II Central software, set the camera controls as follows:

Control	Setting
Output Data / Bit Depth	12 Bits
Mode selection	Trigger off – Free run
Binning*	2x2*
* ONLY for ES2020_800x600_12bitBinCon.DCF	

Mode 2: Pseudo-Continuous

- **Frame rate**: The frame rate is determined by the frequency of the TIMER1 OUT (CC1) signal.
- **Exposure time:** The width (falling to rising edge) 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 via the Solios Virtual COM port, set the camera controls as follows:

Control	Setting
Output Data / Bit Depth	12 Bits
Mode selection	Level controlled trigger mode (negative polarity)
Polarity	Negative

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 details for the interface modes

Cabling Requirements

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	--

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