Matrox Solios eCL/XCL
Camera Interface Application Note
ADIMEC 4150m — January 7, 2009

Basics about the camera

Camera Descriptions

- Effective resolution: 2352 × 1728 × 8-bit @ 144 fps.
- Camera Link FULL interface (Eight taps).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 85 MHz pixel clock rate.

NOTE the DCFs for this interface require the use of the 85 MHz version Matrox Solios (SOL 6M FCF series)

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

Interface Mode

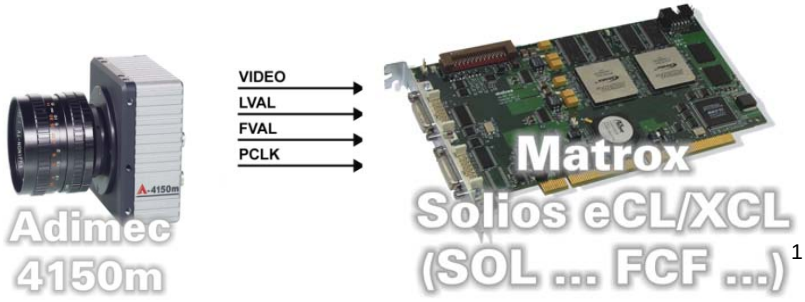
- Continuous (Free run)
- Pseudo-continuous (Control mode)
- Asynchronous reset (Control mode)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 2352 × 1728 × 8-bit @ 53 fps.
- Camera Link FULL interface[1] (Eight taps).
- Progressive scan.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: A4150m_2352x1728_8bit8tapsCon.DCF



Mode 2: Pseudo-Continuous

- 2352 × 1728 × 8-bit.
- Camera Link FULL interface[1] (Eight taps).
- 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.

Continued…

[1] Requires Single-FULL version of Matrox Solios eCL/XCL board (p/n: SOL…FCF…).

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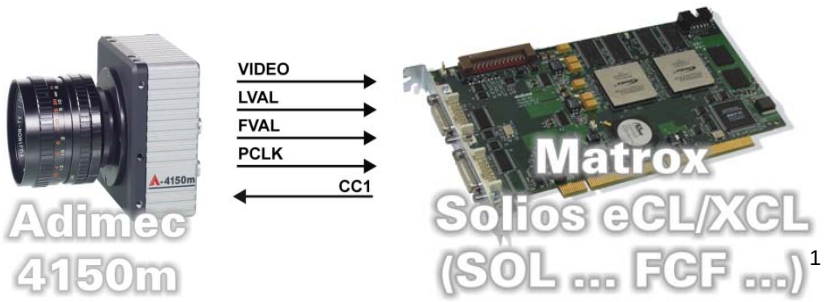
Basics about the interface modes

Camera Interface Briefs (cont.)

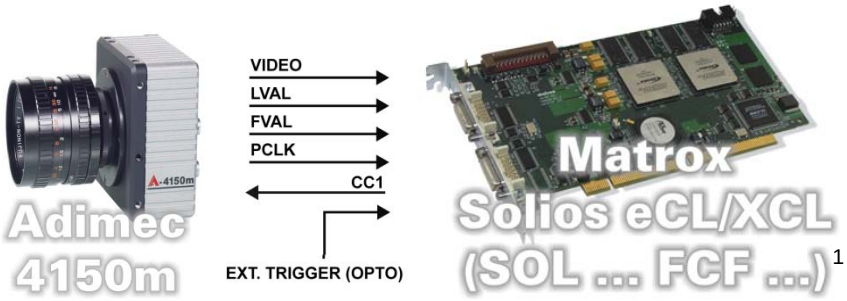
Mode 2: Pseudo-Continuous

- DCF used: A4150m_2352x1728_8bit8tapsPcon.DCF



Mode 3: Asynchronous reset

- 2352 × 1728 × 8-bit.
- Camera Link FULL interface[1] (Eight taps).
- 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: A4150m_2352x1728_8bit8tapsAsync.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 53 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.

Continued…

1. Requires Single-FULL version of Matrox Solios eCL/XCL board (p/n: SOL…FCF…).

Specifics about the interface modes

Camera Interface Details (cont.)

Mode 1: Continuous

- **Camera control settings:** Using the Adimec Windows-based Control Application software, set the camera controls as follows:

Control	Setting
Mode	Continuous
Taps	8 taps
Digital Resolution	8-bit

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:** Using the Adimec Windows-based Control Application software, set the camera controls as follows:

Control	Setting
Mode	Control
Taps	8 taps
Digital Resolution	8-bit

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.

Cabling details for the interface modes

Cabling Requirements

Modes 1 and 2: Continuous, Pseudo-continuous

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

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Cabling details for the interface modes

Cabling Requirements

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, 2009-2011.

Matrox Electronic Systems Ltd.
1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel: (514) 685-2630
Fax: (514) 822-6273