

Matrox Helios eCL/XCL

Camera Interface Application Note

Salvador Imaging SI-6M1

November 2, 2006

Basics about the
camera

Camera Descriptions

- Effective resolution: $3072 \times 2048 \times 12\text{-bit}$ @ 0.7 fps.
- Camera Link BASE interface (12-bit, single tap).
- Progressive scan.
- Internal sync.
- Internal exposure control.
- 5 MHz pixel clock rate.

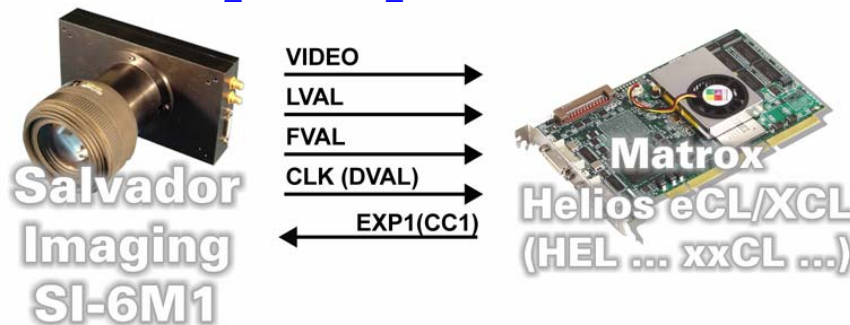
Interface Mode

- Pseudo-continuous (Trigger)
- Asynchronous reset (Trigger)

Camera Interface Briefs

Mode 1: Pseudo-continuous

- $3072 \times 2048 \times 12\text{-bit}$.
- Camera Link BASE interface (12-bit, single tap).
- Matrox Helios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate the exposure.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 5 MHz) and video from camera.
- DCF used: [SI6M1_3072x2048_12bitPcon.DCF](#)



Mode 2: Asynchronous reset

- $3072 \times 2048 \times 12\text{-bit}$.
- Camera Link BASE interface (12-bit, single tap).
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control the exposure.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 5 MHz) and video from camera.
- DCF used: [SI6M1_3072x2048_12bitAsync.DCF](#)

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

Basics about the
interface modes

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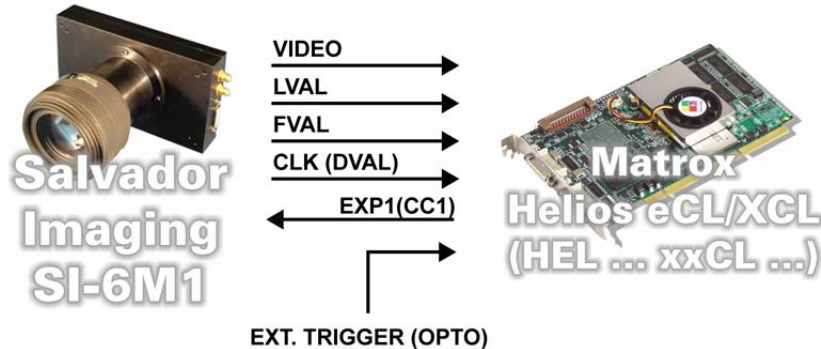
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Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset



Specifics about the
interface modes

Camera Interface Details

Mode 1: Pseudo-continuous

- **Frame rate:** The frame rate is determined by the frequency of the EXPOSURE1 (CC1) signal.
- **Exposure time:** The EXPOSURE1 (CC1) signal pulse (active high) initiates the camera's exposure time. The Salvador Imaging SaUtil program can be used to select either edge initiated exposure with a defined programmable exposure duration (default=500 msec), or pulse width exposure where the width of the EXPOSURE1 (CC1) signal pulse determines the exposure interval. Refer to the camera manual for more information.
- **Camera settings:** Using the Salvador Imaging SaUtil program, select the CC1 option as a trigger source. Refer to the camera manual for more information.

Mode 2: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The period between the external trigger signals must be larger than the frame readout period (1.4 seconds) and the exposure time.
- **Exposure time:** Refer to Mode 1: Pseudo-continuous.
- **Camera settings:** Refer to Mode 1: Pseudo-continuous.

Cabling details for the
interface modes

Cabling Requirements

Mode 1: Pseudo-continuous

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

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Cabling details for the
interface modes

Cabling Requirements (cont.)

Mode 2: 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	←	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, 2006-2011.

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