

Matrox Helios eCL/XCL

Camera Interface Application Note

SONY XCL-5000

May 17, 2007

Basics about the camera

Camera Descriptions

- Effective resolution: $2448 \times 2050 \times 12\text{-bit}$ @ 15 fps.
- Camera Link BASE compatible interface (Single tap).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 80 MHz pixel clock rate.

Interface Mode

- Continuous
- Pseudo-continuous
- Asynchronous reset (Pulse Width Detection)

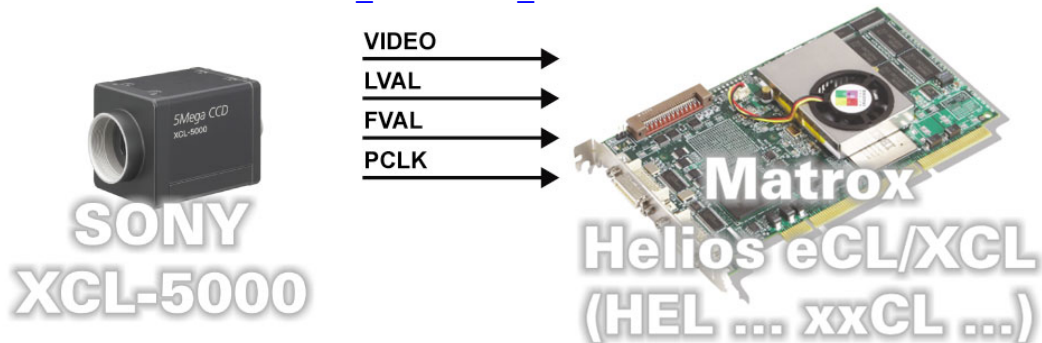
Mode of operations as per Matrox Imaging (in parentheses as per camera manufacturer)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- $2448 \times 2050 \times 12\text{-bit}$ @ 15 fps.
- Camera Link BASE compatible interface (Single tap).
- Progressive scan.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: [XCL5000_2448x2050_12bitCon.DCF](#)



Mode 2: Pseudo-Continuous

- $2448 \times 2050 \times 12\text{-bit}$.
- Camera Link BASE compatible interface (Single tap).
- Progressive scan.
- Matrox Helios eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: [XCL5000_2448x2050_12bitPcon.DCF](#)

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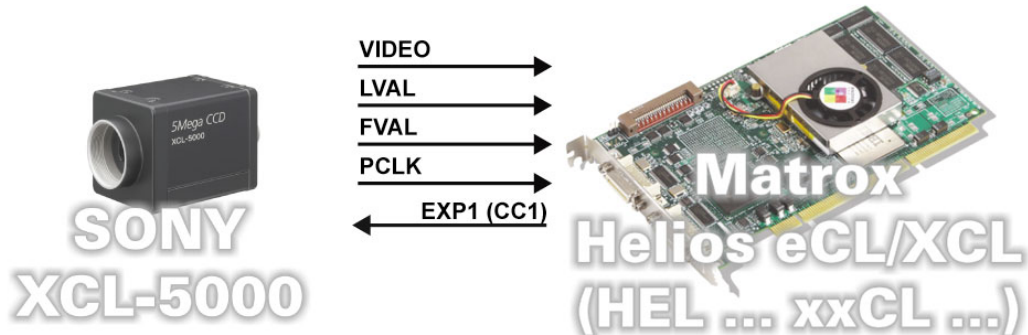
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Basics about the
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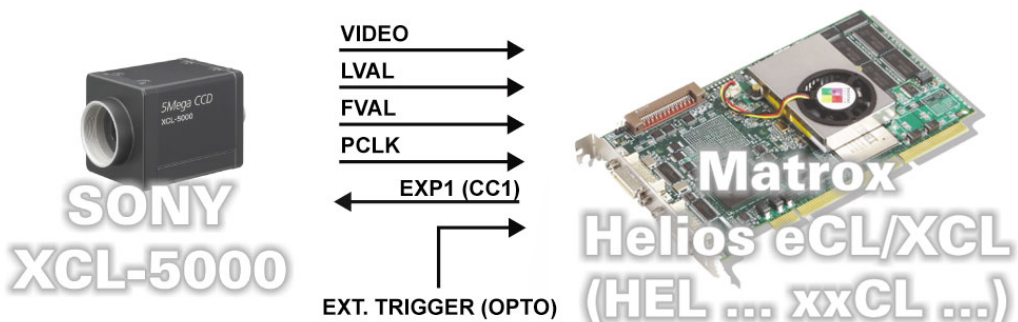
Camera Interface Briefs (cont.)

Mode 2: Pseudo-Continuous



Mode 3: Asynchronous reset

- 2448 × 2050 × 12-bit.
- Camera Link BASE compatible interface (Single tap).
- Progressive scan.
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: [XCL5000_2448x2050_12bitAsync.DCF](#)



Specifics about
the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Helios eCL/XCL receives the continuous video from the camera at 15 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 Configuration:** The camera trigger mode is set to **OFF** in the Camera Configuration Utility. Refer to the camera manual for more information.

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Specifics about the
interface modes

Camera Interface Details (cont.)

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 edge to falling 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 Configuration:** The camera's trigger mode is set as follows in the Camera Configuration Utility. Refer to the camera manual for more information.

Command	Parameter	Description
TRG_MODE	2	External Trigger/Pulse Width Detection
TRG_POL	1	Positive 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.

Cabling Requirements

Modes 1 and 2: Continuous, Pseudo-continuous

- **Cable and Connection:** MINI-CL to MDR26 Camera Link cable.

Mode 3: Asynchronous reset

- **Cable and Connection:** MINI-CL to MDR26 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	←	LINE SIGNAL --
OPTOTRIG -	02	←	LINE GROUND --

Cabling details for the
interface modes

Cabling details for the
interface modes

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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