

Matrox Helios eCL/XCL

Camera Interface Application Note

SONY XCL-U1000

October 10, 2006

Basics about the camera

Camera Descriptions

- Effective resolution: $1600 \times 1200 \times 10\text{-bit}$ @ 15 fps.
- Camera Link BASE compatible interface (Single tap).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 36 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

- $1600 \times 1200 \times 10\text{-bit}$ @ 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: [XCLU1000_1600x1200_10bitCon.DCF](#)



VIDEO
LVAL
FVAL
PCLK



Mode 2: Pseudo-Continuous

- $1600 \times 1200 \times 10\text{-bit}$.
- Camera Link BASE compatible interface (Single tap).
- Progressive scan.
- Matrox Helios eCL/XCL sending TIMER2 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: [XCLU1000_1600x1200_10bitPcont.DCF](#)

Matrox Helios eCL/XCL

Camera Interface Application Note

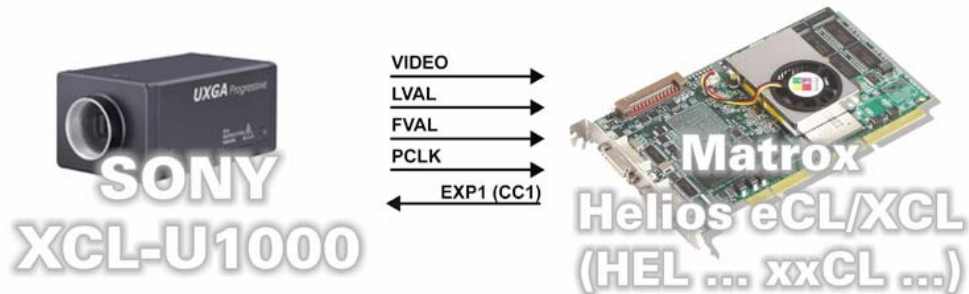
SONY XCL-U1000

October 10, 2006

Basics about the
interface modes

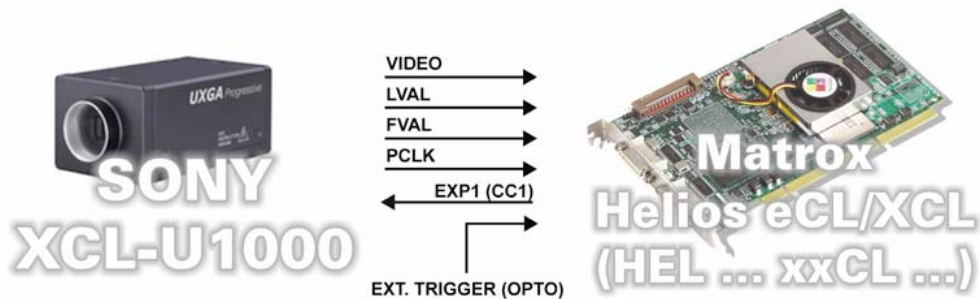
Camera Interface Briefs (cont.)

Mode 2: Pseudo-Continuous



Mode 3: Asynchronous reset

- 1600 × 1200 × 10-bit.
- Camera Link BASE compatible interface (Single tap).
- Progressive scan.
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending TIMER2 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: [XCLU1000_1600x1200_10bitAsync.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.

Matrox Helios eCL/XCL

Camera Interface Application Note

SONY XCL-U1000

October 10, 2006

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 TIMER2 OUT (CC1) signal.
- **Exposure time:** The width (rising edge to falling edge) of the TIMER2 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 to **External Trigger Pulse Width Detection** in the Camera Configuration Utility. Refer to the camera manual for more information.

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:** HD26 to MDR26 Camera Link cable.

Cabling details for the
interface modes

Mode 3: Asynchronous reset

- **Cable and Connection:** HD26 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	--

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.

Matrox Electronic Systems Ltd.

1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel: (514) 685-2630
Fax: (514) 822-6273
HEL-CID-039

