

# Matrox Helios eCL/XCL

## Camera Interface Application Note

### SONY XCL-U1000C

October 10, 2006

Basics about the  
camera

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

Basics about the  
interface modes

#### Camera Descriptions

- Effective resolution:  $1600 \times 1200 \times 8\text{-bit}$  @ 15 fps.
- Camera Link BASE interface (RGB – three tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 36 MHz pixel clock rate.

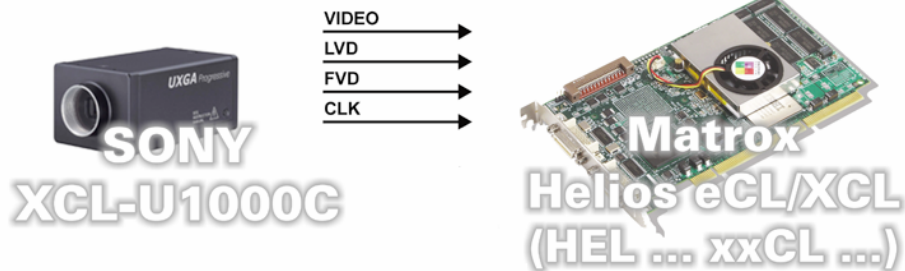
#### Interface Mode

- Continuous (Free run)
- Pseudo-continuous
- Asynchronous reset (Pulse width control)

#### Camera Interface Briefs

##### Mode 1: Continuous

- $1600 \times 1200 \times 8\text{-bit}$  @ 15 fps.
- Camera Link BASE interface (RGB – three tap).
- Progressive scan.
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [XCL-U1000C1600x1200\\_8bitRGBCon.DCF](#)



##### Mode 2: Pseudo-continuous

- $1600 \times 1200 \times 8\text{bit}$ .
- Camera Link BASE interface (RGB – three tap).
- Progressive scan.
- Matrox Helios eCL/XCL sending periodic EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [XCL-U1000C1600x1200\\_8bitRGBPcon.DCF](#)

# Matrox Helios eCL/XCL

## Camera Interface Application Note

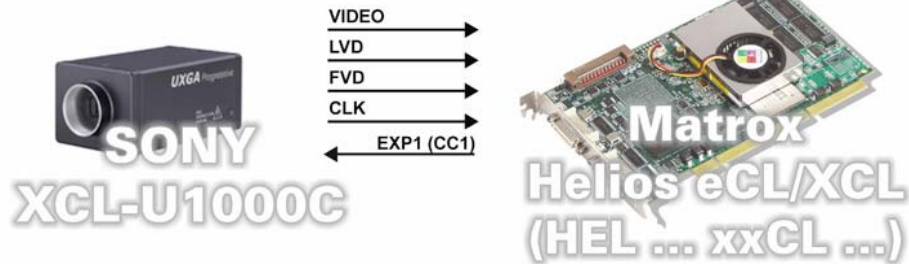
### SONY XCL-U1000C

October 10, 2006

Basics about the interface modes

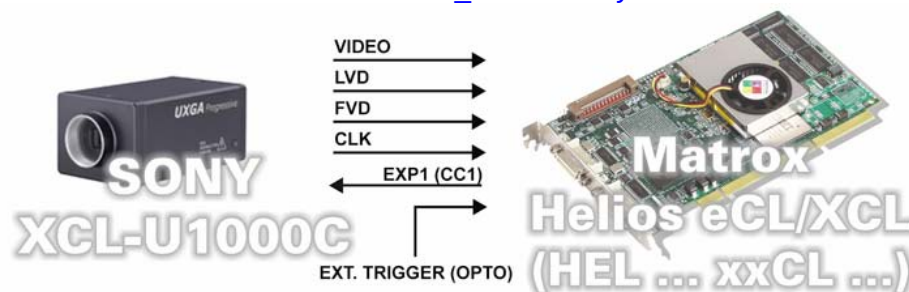
#### Camera Interface Briefs (cont.)

##### Mode 2: Pseudo-continuous



##### Mode 3: Asynchronous reset

- 1600 × 1200 × 8-bit.
- Camera Link BASE interface (RGB – three tap).
- Progressive scan.
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [XCL-U1000C1600x1200\\_8bitRGBAsync.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 determined by the shutter setting. Refer to the camera manual for more information.
- **Camera control settings:** Use the SONY camera control software to set the camera to **Continuous** mode as follows:

| Control      | Setting |
|--------------|---------|
| Trigger Mode | OFF     |

# Matrox Helios eCL/XCL

## Camera Interface Application Note

### SONY XCL-U1000C

October 10, 2006

Specifics about the  
interface modes

#### Camera Interface Details (cont.)

##### Mode 2: Pseudo-continuous

- **Frame Rate and Exposure Time:** Frame rate is determined by the EXPOSURE1 (CC1) setting in the DCF. Changing the frequency (delay period) will control the frame rate, while changing the width (rising edge to falling edge) of EXPOSURE1 (CC1) will control the frame rate as well as exposure time. The frame rate and exposure time can be modified using Matrox Intellicam or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera control settings:** Use the SONY camera control software to set the camera to **External Trigger Pulse Width Detection** mode as follows:

| Control      | Setting                                |
|--------------|----------------------------------------|
| Trigger Mode | External Trigger Pulse Width Detection |

##### Mode 3: Asynchronous reset

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal as well as the width (falling edge to rising edge) of EXPOSURE1 (CC1).
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE1 (CC1) signal is the exposure time. The exposure time can be modified using Matrox Intellicam or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera control settings:** Use the SONY camera control software to set the camera to **External Trigger Pulse Width Detection** mode as follows:

| Control      | Setting                                |
|--------------|----------------------------------------|
| Trigger Mode | External Trigger Pulse Width Detection |

Cabling details  
for the interface modes

#### Cabling Requirements

##### Modes 1 and 2: Continuous and Pseudo-continuous

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

# Matrox Helios eCL/XCL

## Camera Interface Application Note

### SONY XCL-U1000C

October 10, 2006

*Cabling details  
for the interface modes*

#### Cabling Requirements (cont.)

##### *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 | ←                       | 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.

##### Matrox Electronic Systems Ltd.

1055 St. Regis Blvd.  
Dorval, Quebec H9P 2T4  
Canada  
Tel: (514) 685-2630  
Fax: (514) 822-6273  
HEL-CID-049

