

Matrox Helios eCL/XCL

Camera Interface Application Note

Sentech STC-CL500A

December 3, 2010

Basics about the camera

Camera Descriptions

- Effective resolution: $2448 \times 2058 \times 12\text{-bit}$ @ 16 fps.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 64 MHz pixel clock rate.

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

Interface Mode

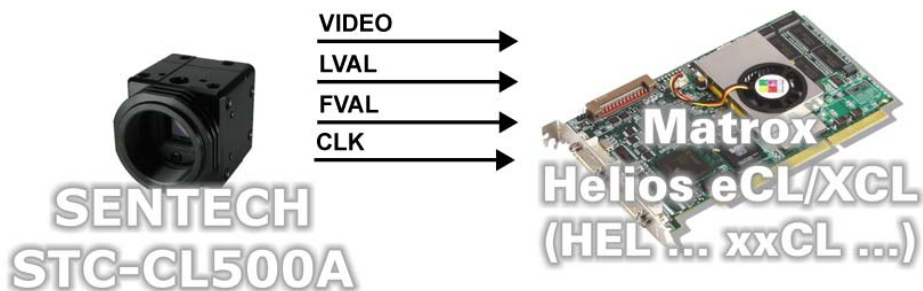
- Continuous (Free Running)
- Pseudo-continuous (Pulse Width Trigger Mode)
- Asynchronous reset (Pulse Width Trigger Mode)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- $2448 \times 2058 \times 12\text{-bit}$ @ 16 fps.
- Camera Link BASE interface (Dual tap).
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 64 MHz) and video from camera.
- DCF used: [STC-CL500A_2448x2058_12bit2TapCon.DCF](#)



Mode 2: Pseudo-continuous

- $2448 \times 2058 \times 12\text{-bit}$.
- Camera Link BASE interface (Dual tap).
- Matrox Helios eCL/XCL sending EXPOSURE 1 (CC1) signal to camera to initiate and control the exposure.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 64 MHz) and video from camera.
- DCF used: [STC-CL500A_2448x2058_12bit2TapPcon.DCF](#)

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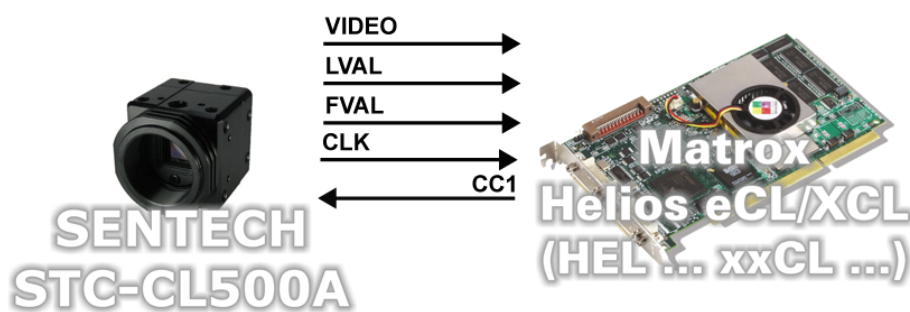
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Basics about the interface modes

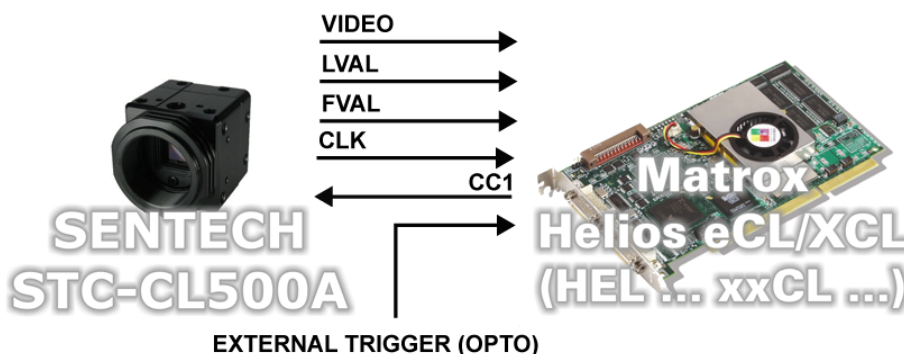
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- $2448 \times 2058 \times 12$ -bit.
- Camera Link BASE interface (Dual tap).
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending EXPOSURE 1 (CC1) signal to camera to initiate and control the exposure.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 64 MHz) and video from camera.
- DCF used: [STC-CL500A_2448x2058_12bit2TapAsync.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 16 frames per second.
- **Exposure time:** Exposure time is set using the Sentech CLCtrl 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 1: Continuous

- **Camera control settings:** Set the camera using the Sentech CLCtrl Camera Configuration Utility as follows: Trigger Mode = Continuous | Output Mode = 12-bit

Mode 2: Pseudo-continuous

- **Frame rate:** The frame rate is determined by the frequency of the EXPOSURE 1 (CC1) signal.
- **Exposure time:** The EXPOSURE1 (CC1) signal's active duration initiates and controls the camera's exposure time, which can be modified in the DCF by changing the Timer 1 active duration in Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera control settings:** Set the camera using the Sentech CLCtrl Camera Configuration Utility as follows: Trigger Mode = Pulse Width Trigger | Output Mode = 12-bit | Trigger Reset Mode = V-Reset

Mode 3: 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 plus the exposure time.
- **Exposure time:** Refer to Mode 2: Pseudo-continuous.
- **Camera settings:** Refer to Mode 2: Pseudo-continuous.

Cabling details for the interface modes

Cabling Requirements

Mode 1 and 2: Continuous and Pseudo-continuous

- **Cable and Connection:** One Standard-To-Mini Camera Link cable.

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Cabling details for the interface modes

Cabling Requirements (cont.)

Mode 3: Asynchronous Reset

- **Cable and Connection:** One Standard-To-Mini Camera Link cable.
- **External trigger:** External trigger should be connected to the external auxiliary I/O (connector 1 on cable adapter bracket).

EXTERNAL AUX. I/O

(connector 1)

PIN NAME		PIN NO.	External Trigger Source	
			PIN NAME	PIN NO.
PO_OPTO_AUX_IN0 +		07 ←	SIGNAL	--
PO_OPTO_AUX_IN0 -		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, 2010-2011.

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