

Matrox Helios eCL/XCL

Camera Interface Application Note

Sentech STC-CLC202A

March 18, 2010

Basics about the
camera

Camera Descriptions

- Effective resolution: $1620 \times 1236 \times 10\text{-bit}$ @ 15 fps.
- Camera Link BASE interface (Single tap).
- Progressive scan, Bayer color.
- Internal sync.
- Internal or external exposure control.
- 36.8181 MHz pixel clock rate.

Interface Mode

- Continuous (Continuous mode)
- Pseudo-continuous (Pulse Trigger Mode)
- Asynchronous reset (Pulse Trigger Mode)

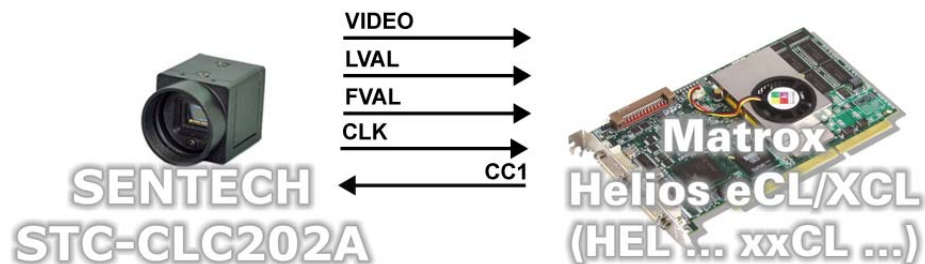
Mode of operations as
per Matrox Imaging (in
parentheses as per
camera manufacturer)

Camera Interface Briefs

Mode 1: Continuous

- $1620 \times 1236 \times 10\text{-bit}$ @ 15 fps.
- Camera Link BASE interface (Single tap).
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 36.8181 MHz) and video from camera.
- DCF used: [STC-CLC202A1620x1236_10bitCon.DCF](#)

Basics about the
interface modes



Mode 2: Pseudo-continuous

- $1620 \times 1236 \times 10\text{-bit}$.
- Camera Link BASE interface (Single tap).
- Matrox Helios eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate the exposure.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 36.8181 MHz) and video from camera.
- DCF used: [STC-CLC202A1620x1236_10bitPcon.DCF](#)

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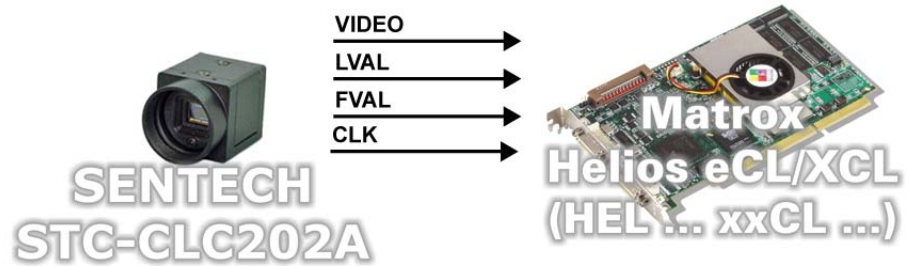
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Basics about the
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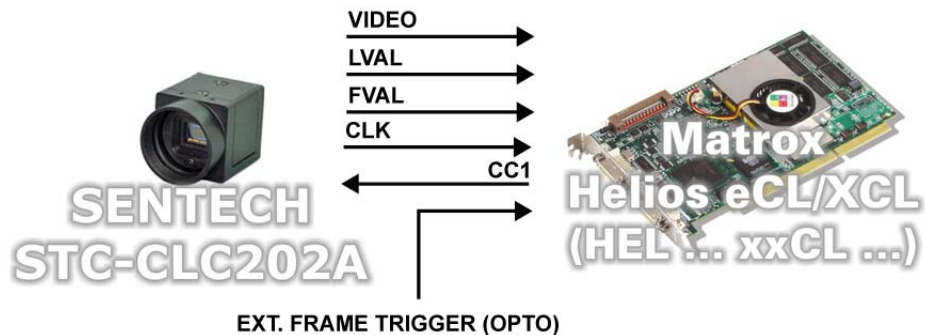
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous Reset

- 1620 × 1236 × 10-bit.
- Camera Link BASE interface (Single tap).
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate the exposure.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 36.8181 MHz) and video from camera.
- DCF used: [STC-CLC202A1620x1236_10bitAsync.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Helios receives the continuous video from the camera at up to 15 frames per second.
- **Exposure time:** Exposure time is set using the integration time setting in the Camera Configuration utility. Refer to the camera manual for more information.
- **Camera control settings:** Using the Sentech SOF-Cube Camera Configuration Utility, set Trigger Mode = Normal (Continuous).

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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 Active Duration 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 control settings:** Using the Sentech SOF-Cube Camera Configuration Utility, set Trigger Mode = Pulse Width Trigger Mode 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 Requirements

Modes 1 and 2: Continuous and Pseudo-continuous

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

Mode 3: Asynchronous reset

- **Cable and Connection:** One Mini-Camera Link cable.
- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector on the Expanded I/O adapter bracket.

EXPANDED I/O BRACKET (9-pin connector)

			External Trigger Source	
OPTOTRIG +	07	←	SIGNAL	--
OPTOTRIG -	02	←	GROUND	--

*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, 2010-2011.

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