

Matrox Solios eCL/XCL

Camera Interface Application Note

Sentech STC-CLC232A

June 26, 2009

Basics about the
camera

Camera Descriptions

- Effective resolution: $1628 \times 1236 \times 10\text{-bit}$ @ 30 fps.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Color Bayer camera modes.
- Internal sync.
- Internal or external exposure control.
- 73.636 MHz pixel clock rate.

NOTE the DCFs for this interface require the use of any 85 MHz Matrox Solios eCL/XCL (i.e., not SOL6MCL or SOL6MCLE*)

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

Interface Mode

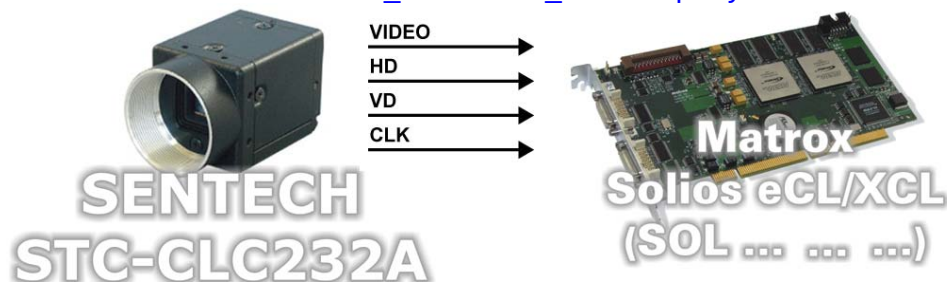
- Continuous (Continuous mode)
- Pseudo-continuous (Pulse Width - Trigger Mode)
- Asynchronous reset (Pulse Width - Trigger Mode)

Basics about the
interface modes

Camera Interface Briefs

Mode 1: Continuous

- $1620 \times 1220 \times 10\text{-bit}$ @ 30 fps.
- Camera Link BASE interface (Dual tap).
- Bayer color filter.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 73.636 MHz) and video from camera.
- DCF used: [STCCLC232A_1620x1220_10bit2TapBayerCon.DCF](#)



Mode 2: Pseudo-continuous

- $1620 \times 1220 \times 10\text{-bit}$.
- Camera Link BASE interface (Dual tap).
- Bayer color filter.
- Matrox Solios eCL/XCL sending a periodic TIMER1 OUT (CC1) signal to camera to initiate the exposure.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 73.636 MHz) and video from camera.

Continued...

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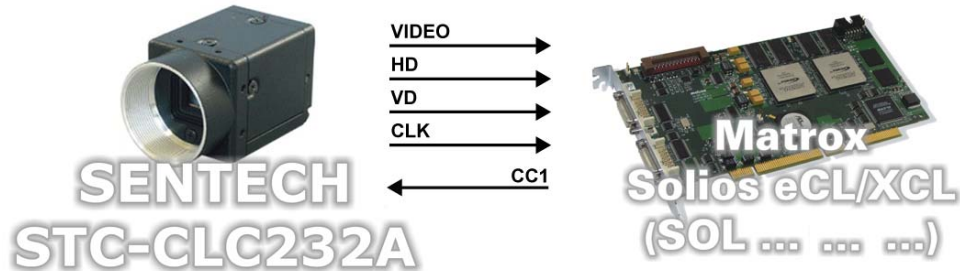
June 26, 2009

Basics about the
interface modes

Camera Interface Briefs (cont.)

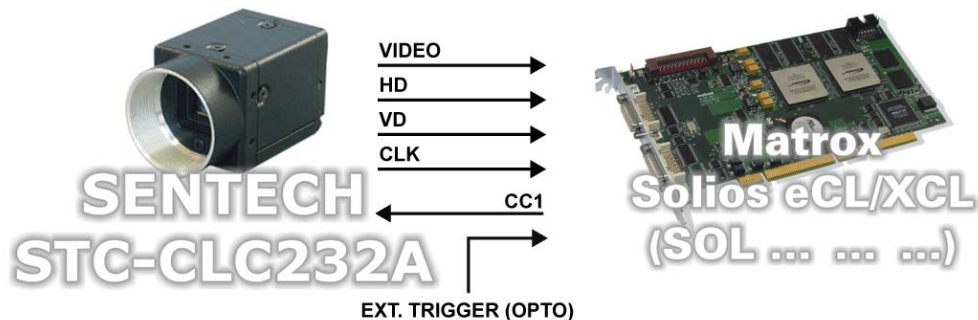
Mode 2: Pseudo-continuous

- DCF used: [STCCLC232A_1620x1220_10bit2TapBayerPcon.DCF](#)



Mode 3: Asynchronous Reset

- 1620 × 1220 × 10-bit.
- Camera Link BASE interface (Dual tap).
- Bayer color filter.
- Matrox Solios eCL/XCL receiving external trigger signal.
- Matrox Solios eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate the exposure.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 73.636 MHz) and video from camera.
- DCF used: [STCCLC232A_1620x1220_10bit2TapBayerAsync.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Solios receives the continuous video from the camera at up to 30 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.

Continued...

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*Specifics about the
interface modes*

Camera Interface Details

Mode 1: Continuous

- **Bayer color filter:** Color information is generated by a Bayer color mosaic filter mounted on the sensor. RGB information can only be obtained through software-based conversion. Following each frame capture it will be necessary to make a call to your MIL/MIL-Lite program in order to reconstruct the proper color image. This will require processing time by the host computer, which may reduce the effective acquisition rate. For more information, contact your local Sales representative or Matrox Imaging Technical Support.
- **Camera control settings:** Use the Sentech CLCtrl Camera Configuration Utility to set the following modes:

Shutter Section:

Trigger Mode: Edge Preset

Mode Section:

Trigger Reset Mode: Non-Reset

Continue/Trigger Shutter Mode Manual Selection: Trigger Shutter Mode

Output Format Selection: 10 bit

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.
- **Bayer color filter:** Refer to Mode 1: Continuous.
- **Camera control settings:** Use the Sentech CLCtrl Camera Configuration Utility to set the following modes:

Shutter Section:

Trigger Mode: Pulse Width

Mode Section:

Trigger Reset Mode: V-Reset

Continue/Trigger Shutter Mode Manual Selection: Trigger Shutter Mode

Output Format Selection: 10 bit

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.
- **Bayer color filter:** Refer to Mode 1: Continuous.
- **Camera settings:** Refer to Mode 2: Pseudo-continuous.

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Cabling details for the
interface modes

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	--

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, 2009-2011.

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