Matrox Solios eCL/XCL

Camera Interface Application Note

CIS VCC-G32S21CL January 6, 2009

Basics about the camera

Camera Descriptions

- Effective resolution: 1360 × 1024 × 10-bit @ 37.6 fps.
- Camera Link BASE interface (single tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 72 MHz pixel clock rate.

NOTE the DCFs for this interface require the use of the 85 MHz version Matrox Solios (SOL 6M FCxx series)

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

Interface Mode

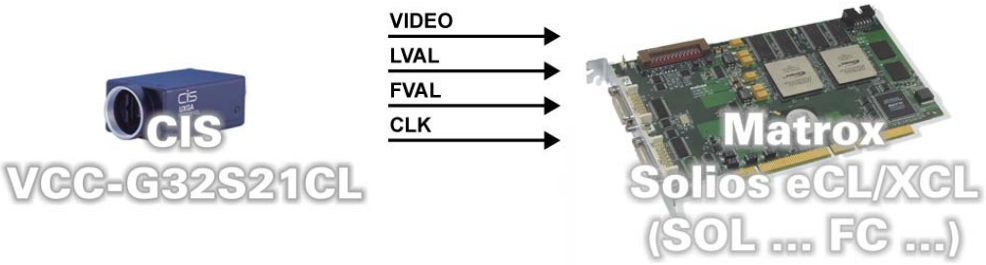
- Continuous (Free Running)
- Pseudo-continuous (Pulse Width Trigger Mode)
- Asynchronous reset (Pulse Width Trigger Mode)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 1360 × 1024 × 10-bit @ 37.6 fps.
- Camera Link BASE interface (single tap).
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 72 MHz) and video from camera.
- DCF used: VCC-G32S21CL_1360x1024_10bitCon.DCF



Mode 2: Pseudo-continuous

- 1360 × 1024 × 10-bit.
- Camera Link BASE interface (single tap).
- Matrox Solios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control the exposure.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 72 MHz) and video from camera.
- DCF used: VCC-G32S21CL_1360x1024_10bitPcon.DCF

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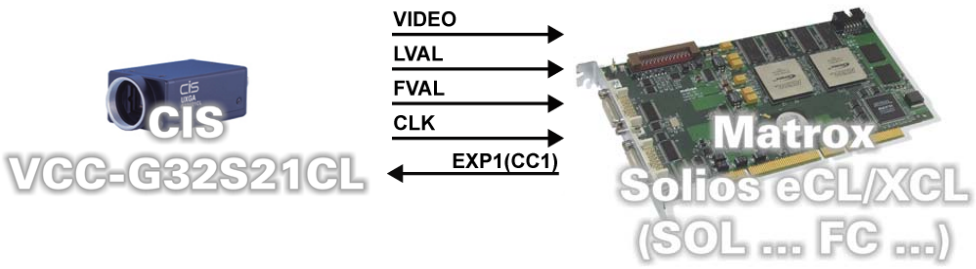
Basics about the interface modes

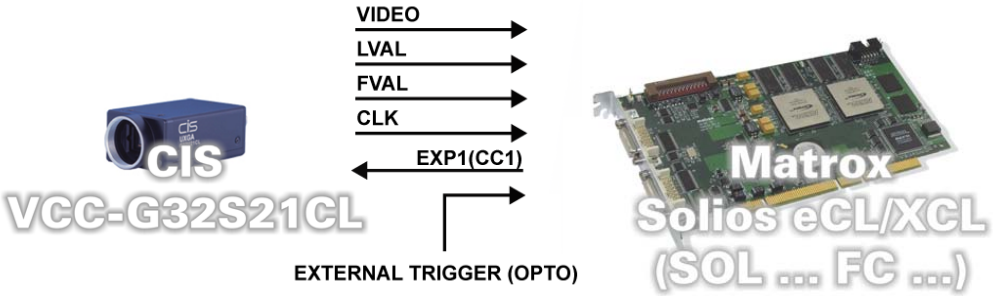
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- 1360 × 1024 × 10-bit.
- Camera Link BASE interface (single tap).
- Matrox Solios eCL/XCL receiving external trigger signal.
- Matrox Solios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control the exposure.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 72 MHz) and video from camera.
- DCF used: VCC-G32S21CL_1360x1024_10bitAsync.DCF



Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Solios eCL/XCL receives the continuous video from the camera at 37.6 frames per second.
- **Exposure time:** Exposure time is determined by the **Shutter** setting in the CIS Camera Control Panel utility. Refer to the camera manual for more information.
- **Camera settings:** The camera mode is set to **Normal Trigger Mode** in the CIS Camera Control Panel.

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Specifics about the interface modes

Camera Interface Details

Mode 2: Pseudo-continuous

- **Frame rate**: The frame rate is determined by the frequency of the EXPOSURE1 (CC1) signal.
- **Exposure time:** The EXPOSURE1 (CC1) signal active duration initiates and controls the camera's exposure time. To modify the exposure time, in Matrox Intellicam change the **Timer 1** active duration in the DCF or use the MIL MdigControl function. Refer to the MIL on-line Help for more information.
- **Camera settings:** The camera mode is set to **Pulse Width Trigger Mode** in the CIS Camera Control Panel.

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:** Mini-Camera Link cable.

Mode 3: Asynchronous reset

- **Cable and Connection:** Mini-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.

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