

Matrox Solios eCL/XCL

Camera Interface Application Note

HITACHI HV-F31CL

May 15, 2007

Basics about the
camera

Camera Descriptions

- Effective resolution: $1024 \times 768 \times 10\text{-bit}$ (RGB) @ 30 fps.
- Camera Link BASE interface¹ (single tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 28.8 MHz pixel clock rate.

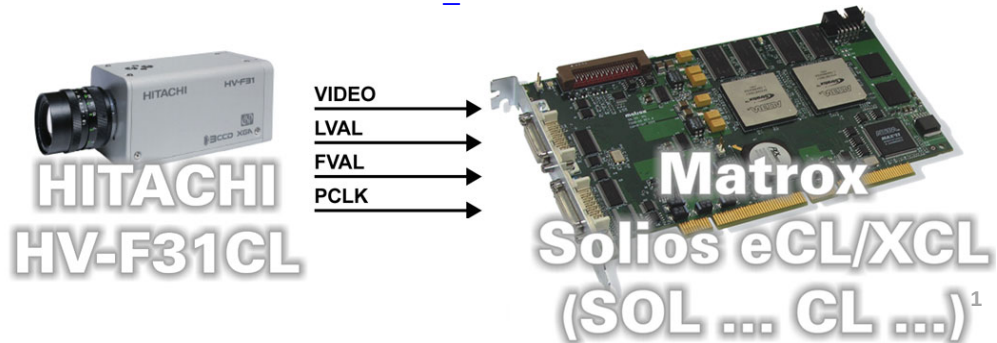
Interface Mode

- Continuous
- Pseudo-continuous (Trigger mode 1)
- Asynchronous reset (Trigger mode 1)

Camera Interface Briefs

Mode 1: Continuous

- $1024 \times 768 \times 10\text{-bit}$ (RGB) @ 30 fps.
- Camera Link BASE interface (single tap).
- Progressive scan.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.
- DCF used: [HVF31CL1024x768_10bitRGBCon.DCF](#)



Mode 2: Pseudo-continuous

- $1024 \times 768 \times 10\text{-bit}$ (RGB).
- Camera Link BASE interface (single tap).
- Progressive scan.
- Matrox Solios eCL/XCL sending periodic EXPOSURE1 (CC2) signal to camera to initiate and control exposure time.

Continued...

¹ Single-BASE models (SOL 6M CLB* or SOL 6M CLBE*) not supported.

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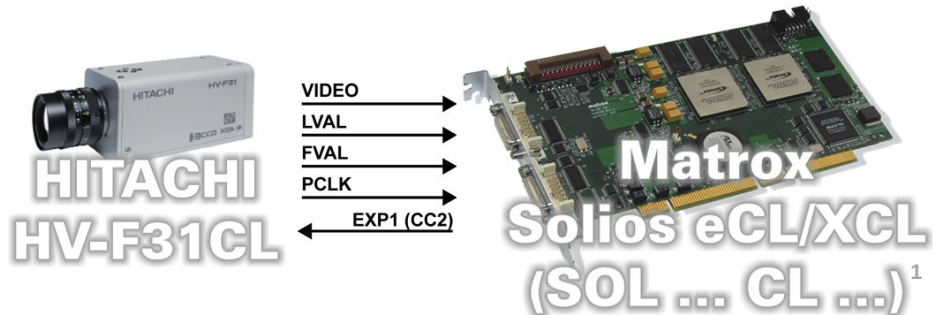
May 15, 2007

Basics about the
interface modes

Camera Interface Briefs (cont.)

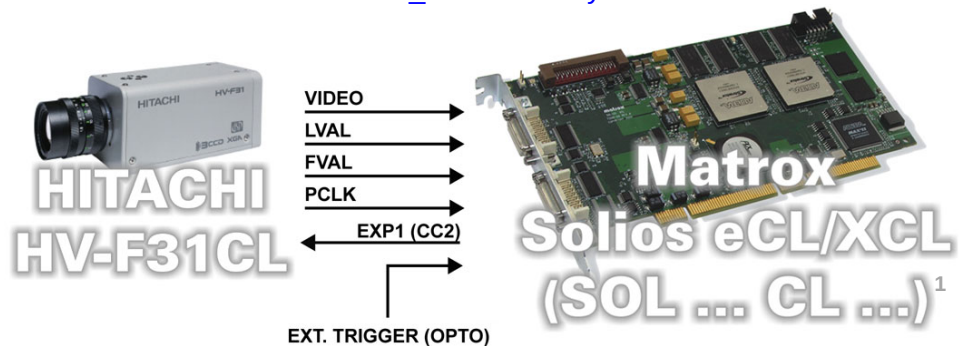
Mode 2: Pseudo-continuous

- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.
- DCF used: [HVF31CL1024x768_10bitRGBPcon.DCF](#)



Mode 3: Asynchronous reset

- 1024 × 768 × 10-bit (RGB).
- Camera Link BASE interface (single tap).
- Progressive scan.
- Matrox Solios eCL/XCL receiving external trigger signal.
- Matrox Solios eCL/XCL sending EXPOSURE1 (CC2) signal to camera to initiate and control exposure time.
- Matrox Solios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.
- DCF used: [HVF31CL1024x768_10bitRGBAsync.DCF](#)



¹ Single-BASE models (SOL 6M CLB* or SOL 6M CLBE*) not supported.

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*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 30 frames per second.
- **Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.
- **Camera mode settings:** Set the camera mode to **Trigger Mode = Continuous** using the camera manufacturer's configuration tool.

Camera Interface Details (cont.)

Mode 2: Pseudo-continuous

- **Frame Rate/Exposure time:** The frame rate is determined by the EXPOSURE1 (CC2) setting in the DCF. Changing the frequency (delay period) will control the frame rate, while changing the width (falling edge to rising edge) of EXPOSURE1 (CC2) controls 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 mode settings:** Set the camera mode to **Trigger Mode = Mode 1** using the camera manufacturer's configuration tool.

Mode 3: Asynchronous reset

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (CC2) 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 mode settings:** Same as 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:** Standard Camera Link.

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, 2007-2011.

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