

Matrox Helios eCL/XCL

Camera Interface Application Note

HITACHI KP-FD30CL

March 27, 2007

Basics about the
camera

Camera Descriptions

- Effective resolution: $659 \times 494 \times 8\text{-bit}$ @ 60 fps.
- Camera Link BASE interface (RGB).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 24.5454 MHz pixel clock rate.

Interface Mode

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

Camera Interface Briefs

Mode 1: Continuous

- $659 \times 494 \times 8\text{-bit}$ @ 60 fps.
- Camera Link BASE interface (RGB).
- Progressive scan.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.
- DCF used: [KPF30CL659x494_8bitCon.DCF](#)



Mode 2: Pseudo-continuous

- $659 \times 494 \times 8\text{-bit}$.
- Camera Link BASE interface (RGB).
- Progressive scan.
- Matrox Helios eCL/XCL sending periodic TIMER1 OUT (CC1) signal to camera to initiate and control exposure time.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.

Continued...

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

Basics about the
interface modes

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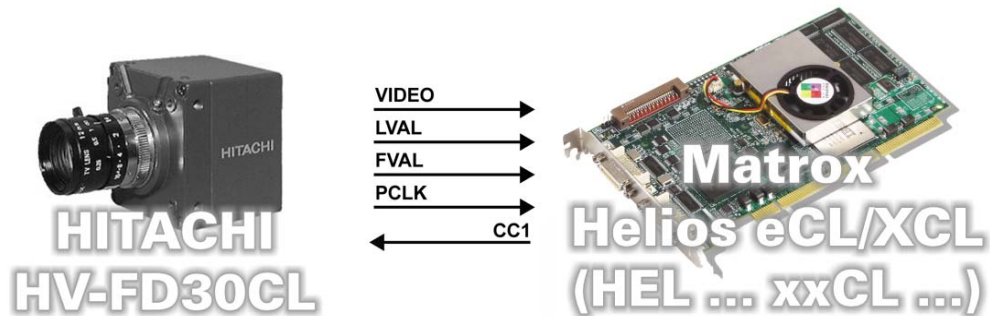
March 27, 2007

Basics about the
interface modes

Camera Interface Briefs (cont.)

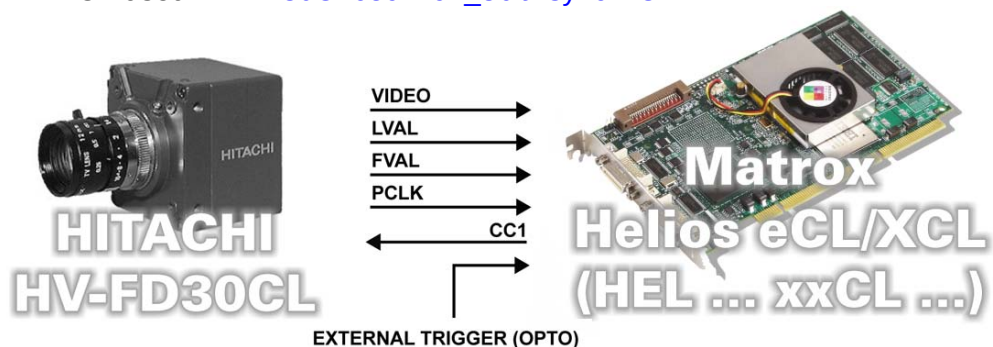
Mode 2: Pseudo-continuous

- DCF used: [KPF30CL659x494_8bitPcon.DCF](#)



Mode 3: Asynchronous reset

- 659 × 494 × 8-bit.
- Camera Link BASE interface (RGB).
- Progressive scan.
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending TIMER1 OUT (CC1) signal to camera to initiate and control exposure time.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.
- DCF used: [KPF30CL659x494_8bitAsync.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 60 frames per second.
- Exposure time:** Exposure time is set using the **Shutter Speed** setting in the Camera Configuration Utility. Refer to the camera manual for more information.
- Camera Configuration:** The camera mode is set to **Trigger mode OFF** in the 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 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.
- **Camera Configuration:** The camera mode is set to **ONE Trigger mode** checkbox is enabled in the Camera Configuration Utility. Refer to the camera manual for more information.

Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** Same as in Mode 2: Pseudo-continuous.
- **Camera Configuration:** The camera mode is set to **ONE Trigger mode** checkbox is enabled in the Camera Configuration Utility. Refer to the camera manual for more information.

Cabling details for the
interface modes

Cabling Requirements

Modes 1 and 2: Continuous and Pseudo-continuous

- **Cable and Connection:** Standard Camera Link cable.

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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