

Matrox Helios eCL/XCL

Camera Interface Application Note

HITACHI KP-F230SCL

August 28, 2009

Basics about the
camera

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

Basics about the
interface modes

Camera Descriptions

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

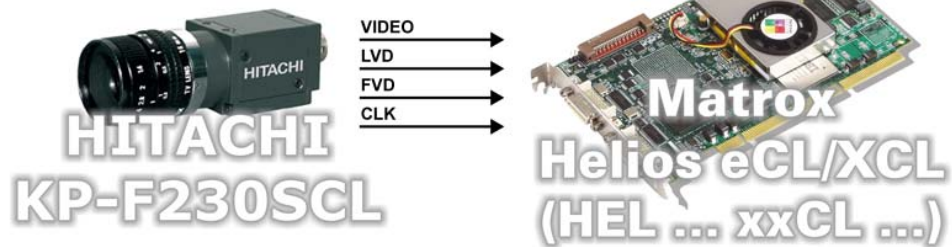
Interface Mode

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

Camera Interface Briefs

Mode 1: Continuous

- $1628 \times 1236 \times 10\text{-bit}$ @ 30 fps.
- Camera Link BASE interface (dual tap).
- Progressive scan.
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [KPF230SCL1628x1236_10bitCon.DCF](#)



Mode 2: Pseudo-continuous

- $1628 \times 1236 \times 10\text{-bit}$.
- Camera Link BASE interface (dual tap).
- 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 LDV, FDV, CLK and video signal from camera.

Continued...

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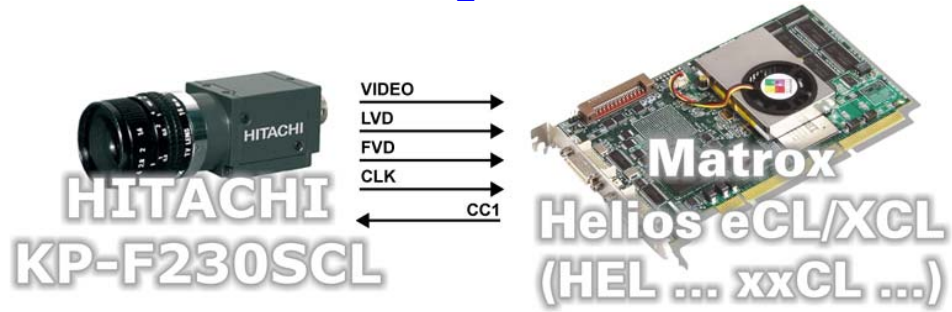
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Basics about the interface modes

Camera Interface Briefs (cont.)

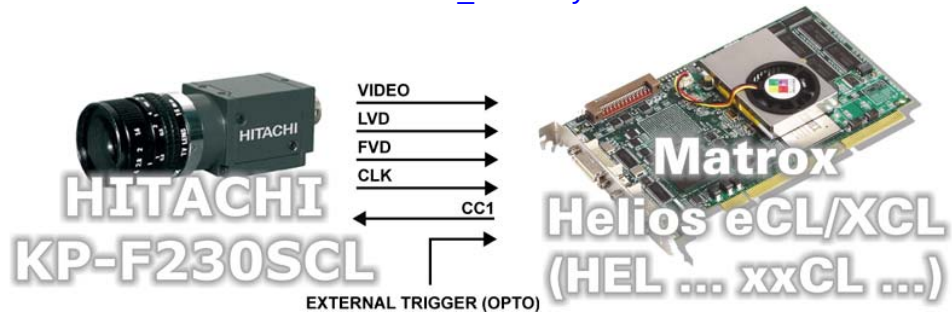
Mode 2: Pseudo-continuous

- DCF used: [KPF230SCL1628x1236_10bitPcon.DCF](#)



Mode 3: Asynchronous reset

- 1628 × 1236 × 10-bit.
- Camera Link BASE interface (dual tap).
- 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 LDV, FDV, CLK and video signal from camera.
- DCF used: [KPF230SCL1628x1236_10bitAsync.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 30 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 as follows in the Camera Configuration Utility. Refer to the camera manual for more information.

Mode	Trigger	DATA BIT	2xACCEL	VD/LVAL	HD/LVAL
Setting	Mode OFF	10-bits	OFF	FVAL	LVAL

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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 as follows in the Camera Configuration Utility. Refer to the camera manual for more information.

Mode	Trigger	Trigger	DATA BIT	2xACCEL	VD/LVAL	HD/LVAL
Setting	Mode-1TRIGGER	POLARITY - TRIG-A, POS	10-bits	OFF	FVAL	LVAL

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:** Same as in Mode 2: Pseudo-continuous.

Cabling Requirements

Modes 1 and 2: Continuous and Pseudo-continuous

- **Cable and Connection:** Hitachi Camera Link cable - small SDR (Mini-CL).

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	--

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, 2009-2011.

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