

Matrox Solios eCL/XCL-B

Camera Interface Application Note

HITACHI KP-FR30PCL

June 30, 2009

Basics about the
camera

Camera Descriptions

- Effective resolution: $659 \times 494 \times 10\text{-bit}$ @ 60 fps.
- Camera Link BASE interface (single tap).
- Progressive scan.
- Bayer color filter.
- Internal sync.
- Internal or external exposure control.
- 24.5454 MHz pixel clock rate.

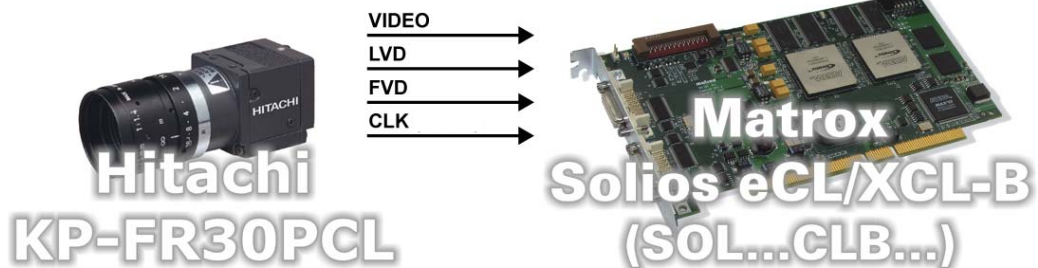
Interface Mode

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

Camera Interface Briefs

Mode 1: Continuous

- $659 \times 494 \times 10\text{-bit}$ @ 60 fps.
- Camera Link BASE interface (single tap).
- Progressive scan.
- Matrox Solios eCL/XCL-B receiving LVAL, FVAL, CLK and video signal from camera.
- DCF used: [KPFR30PCL659x494_10bitBayerCon.DCF](#)



Mode 2: Pseudo-continuous

- $659 \times 494 \times 10\text{-bit}$.
- Camera Link BASE interface (single tap).
- Progressive scan.
- Matrox Solios eCL/XCL-B sending periodic TIMER1 OUT (CC1) signal to camera to initiate and control exposure time.
- Matrox Solios eCL/XCL-B receiving LVAL, FVAL, CLK and video signal from camera.
- DCF used: [KPFR30PCL659x494_10bitBayerPcon.DCF](#)

Continued...

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

Basics about the
interface modes

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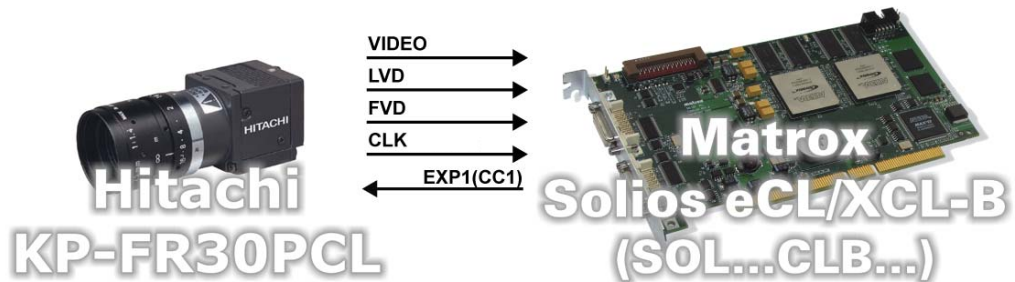
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Basics about the
interface modes

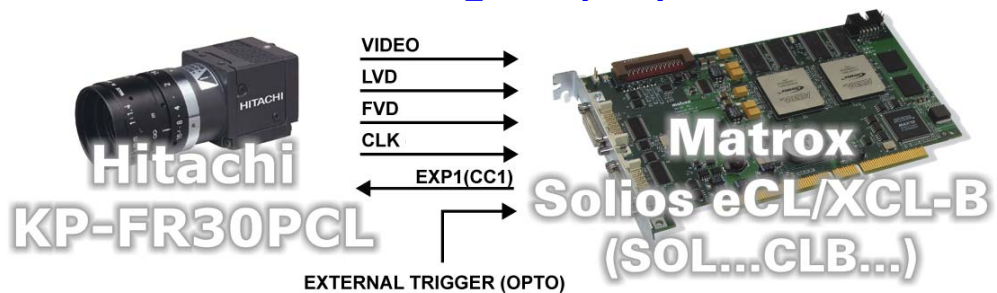
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- 659 × 494 × 10-bit.
- Camera Link BASE interface (single tap).
- Progressive scan.
- Matrox Solios eCL/XCL-B receiving external trigger signal.
- Matrox Solios eCL/XCL-B sending TIMER1 OUT (CC1) signal to camera to initiate and control exposure time.
- Matrox Solios eCL/XCL-B receiving LVAL, FVAL, CLK and video signal from camera.
- DCF used: [KPFR30PCL659x494_10bitBayerAsync.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Solios eCL/XCL-B 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.
- **Bayer Color Filter:** Color information is generated by a Bayer color mosaic filter mounted on the sensor. Refer to the MIL online Help for information on using buffers with the Bayer color filter.
- **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 EXPOSURE1 (CC1) signal active duration initiates and controls the camera's internal exposure time. To modify the exposure time change the Timer 1 value in the DCF (Matrox Intellicam) or use the MIL MdigControl function. Refer to the MIL Help for more information.
- **Bayer Color Filter:** Refer to Mode 1: Continuous.
- **Camera Configuration:** The camera mode is set to **ONE Trigger mode** 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.
- **Bayer Color Filter:** Refer to Mode 1: Continuous.
- **Camera Configuration:** The camera mode is set to **ONE Trigger mode** 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:** PoCL (Power over Camera Link) Mini-Camera Link cable.

Mode 3: Asynchronous reset

- **Cable and Connection:** PoCL (Power over Camera Link) Mini-Camera Link cable.
- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 15-pin connector (pins 15 and 9) on the Expanded I/O adapter bracket.

EXPANDED I/O BRACKET (15-pin connector)

		External Trigger Source	
OPTO_AUX_IN0+	15	←	SIGNAL --
OPTO_AUX_IN0-	09	←	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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