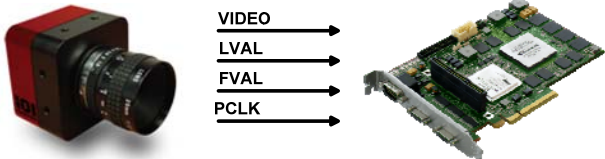


Matrox Radiant eCL

Camera Interface Application Note

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Basics about the camera	Camera Descriptions ▪ Effective resolution: up to $2050 \times 2048 \times 10\text{-bit}$ @ 179.7 fps. ▪ Camera Link FULL interface (Eight or Ten taps). ▪ Progressive scan. ▪ Internal sync. ▪ External or internal exposure control. ▪ 80 MHz pixel clock rate.
Mode of operations as per Matrox Imaging (in parentheses as per camera manufacturer)	Interface Mode ▪ Continuous ▪ Pseudo-continuous ▪ Asynchronous reset (Edge-Triggered, Level-controlled Exposure)
Basics about the interface modes	Camera Interface Briefs <i>Mode 1: Continuous</i> ▪ Up to $2050 \times 2048 \times 10\text{-bit}$ @ 179.7 fps. ▪ Camera Link FULL interface (Eight or Ten taps). ▪ Matrox Radiant eCL receiving LVAL, FVAL, PCLK and video from camera. ▪ DCF used: 4M180_2048x2048_8bit_8taps_Con.dcf ▪ DCF used: 4M180_2050x2048_8bit_10taps_Con.dcf  IO Industries Flare 4M180-CL Matrox Radiant eCL (RAD2GxF...*) <i>Mode 2: Pseudo-continuous</i> ▪ $2050 \times 2048 \times 10\text{-bit}$. ▪ Camera Link FULL interface (Eight or Ten taps). ▪ Matrox Radiant eCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure. ▪ Matrox Radiant eCL receiving LVAL, FVAL, PCLK and video from camera. ▪ DCF used: 4M180_2048x2048_8bit_8taps_Pcon.dcf ▪ DCF used: 4M180_2050x2048_8bit_10taps_Pcon.dcf

Matrox Radiant eCL

Camera Interface Application Note

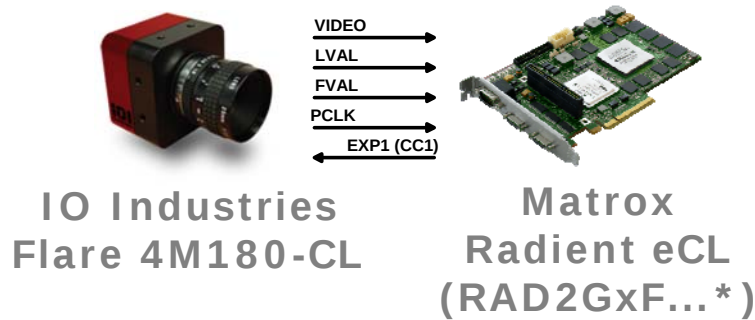
IO Industries Flare 4M180-CL

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Basics about the interface modes

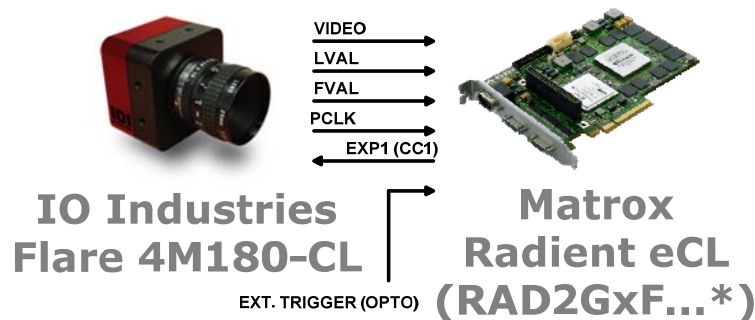
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- 2050 × 2048 × 10-bit.
- Camera Link FULL interface (Eight or Ten taps).
- Matrox Radiant eCL receiving external trigger signal.
- Matrox Radiant eCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.
- Matrox Radiant eCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: [4M180_2048x2048_8bit_8taps_Async.dcf](#)
- DCF used: [4M180_2050x2048_8bit_10taps_Async.dcf](#)



Matrox Radiant eCL

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Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Radiant eCL receives the continuous video from the camera at 179.7 frames per second.
- **Exposure time:** Exposure time is set using the programmable exposure setting in the Camera Configuration utility. Refer to the camera manual for more information.
- **Camera settings:** Set the camera controls using the Flare utility as follows:
 - For 8tap – 8bit format: General Tab\Camera Link Output\Format\Full
 - For 10tap – 8bit format: General Tab\Camera Link Output\Format\Full-80 (8-bit)
 - Exposure Tab\Mode\Free-Run, Programmable Exposure

Mode 2: Pseudo-continuous

- **Frame rate:** The frame rate is determined by the frequency of the TIMER1 OUT (CC1) signal.
- **Exposure time:** The exposure time is determined by the pulse duration (high level) of the TIMER1 OUT (CC1) signal, which can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera control settings:** Set the camera controls using the Flare utility as follows:
 - For 8tap – 8bit format: General Tab\Camera Link Output\Format\Full
 - For 10tap – 8bit format: General Tab\Camera Link Output\Format\Full-80 (8-bit)
 - Exposure Tab\Mode\Edge-Triggered, Level-Controlled Exposure
 - Exposure Tab\Trigger 1\CC1 + High (Polarity)

Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** Refer to Mode 2: Pseudo-continuous.
- **Camera settings:** Refer to Mode 2: Pseudo-continuous.

Matrox Radiant eCL

Camera Interface Application Note

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*Cabling details for the interface
modes*

Cabling Requirements

Mode 1 and 2: Continuous and Pseudo-continuous

- **Cable and Connection:** Two Mini-To-Mini Camera Link cables.

Mode 3: Asynchronous Reset

- **Cable and Connection:** Two Mini-To-Mini Camera Link cables.
- **External trigger:** External trigger should be connected to the external auxiliary I/O (connector A on Matrox Radiant eCL bracket).

EXTERNAL AUX. I/O

(connector A)

PIN NAME		PIN NO.		External Trigger Source	
				PIN NAME	PIN NO.
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, 2013.

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