

Matrox Radiant eCL

Camera Interface Application Note

Toshiba TELI CSC12M25BMP19

January 26, 2011

Basics about the camera

Camera Descriptions

- Effective resolution: $4096 \times 3072 \times 10\text{-bit}$ @ 25 fps.
- Camera Link MEDIUM interface (Four tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 82.5 MHz pixel clock rate.

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

Interface Mode

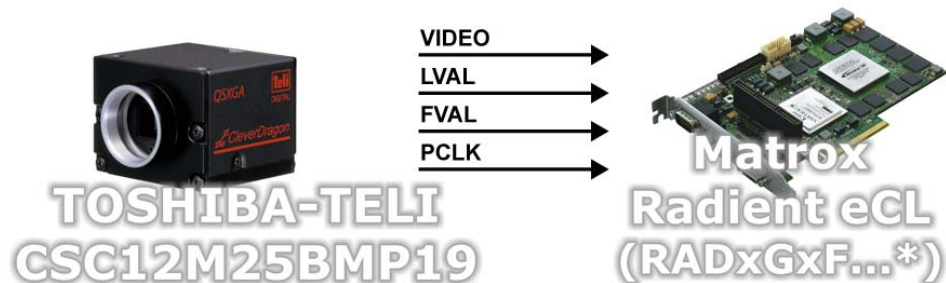
- Continuous (Free Running)
- Pseudo-continuous (Random Shutter Mode with Pulse)
- Asynchronous reset (Random Shutter Mode with Pulse)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- $4096 \times 3072 \times 10\text{-bit}$ @ 25 fps.
- Camera Link MEDIUM interface (Four tap).
- Matrox Radiant eCL receiving LVAL, FVAL, PCLK (@ 82.5 MHz) and video from camera.
- DCF used: [CSC12M25BMP19_4096x3072_10bit4TapCon.DCF](#)



Mode 2: Pseudo-continuous

- $4096 \times 3072 \times 10\text{-bit}$.
- Camera Link MEDIUM interface (Four tap).
- Matrox Radiant eCL sending TIMER1 OUT (CC1) signal to camera to initiate and control the exposure.
- Matrox Radiant eCL receiving LVAL, FVAL, PCLK (@ 82.5 MHz) and video from camera.
- DCF used: [CSC12M25BMP19_4096x3072_10bit4TapPcon.DCF](#)

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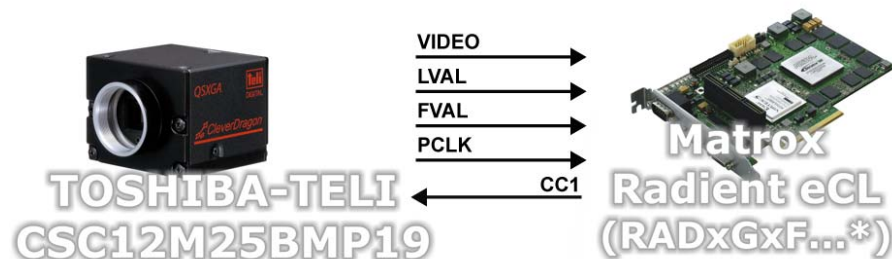
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Basics about the interface modes

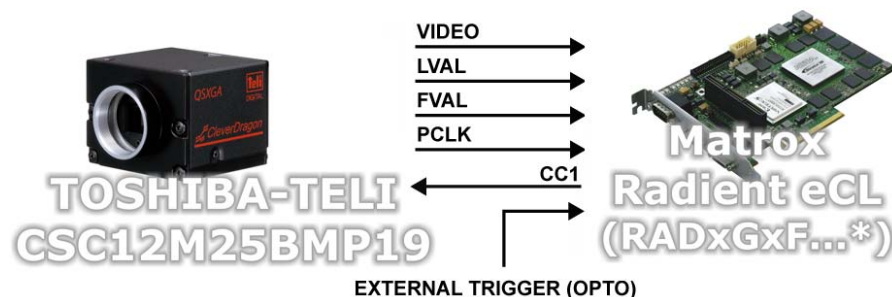
Camera Interface Briefs (cont.)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- 4096 × 3072 × 10-bit.
- Camera Link MEDIUM interface (Four tap).
- 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 (@ 82.5 MHz) and video from camera.
- DCF used: [CSC12M25BMP19_4096x3072_10bit4TapAsync.DCF](#)



Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Radiant eCL receives the continuous video from the camera at 25 frames per second.
- **Exposure time:** Exposure time is set using the Toshiba TELI Camera Configuration utility. Refer to the camera manual for more information.
- **Camera settings:** Set the camera using the TELI Camera Configuration Utility as follows: Mode = Continuous (Free Running)

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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 TIMER1 OUT active duration initiates and controls the exposure time. To modify the exposure time, change the TIMER1 OUT active duration 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 using the TELI Camera Configuration Utility as follows: Shutter = Random | RTS = Pulse | Trigger Polarity = Negative

Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The period between the external trigger signals must be larger than the frame readout period plus the exposure time.
- **Exposure time:** Refer to Mode 2: Pseudo-continuous.
- **Camera settings:** Refer to Mode 2: Pseudo-continuous.

Cabling details for the interface modes

Cabling Requirements

Mode 1 and 2: Continuous and Pseudo-continuous

- **Cable and Connection:** One Mini-To-Standard Camera Link cable.

Mode 3: Asynchronous Reset

- **Cable and Connection:** One Mini-To-Standard Camera Link cable.
- **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)

		External Trigger Source	
PIN NAME	PIN NO.	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, 2010-2011.

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