

Matrox Odyssey eCL/XCL

Camera Interface Application Note

DALSA 1M28-SA (DS-1x-01M28) August 18, 2006

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: $1024 \times 1024 \times 10\text{-bit}$ @ 27 fps* (full scanning).
- Camera Link BASE interface (Single tap).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 28 MHz pixel clock rate.

* Up to 105 fps supported in 512 x 512 windowed ROI mode.

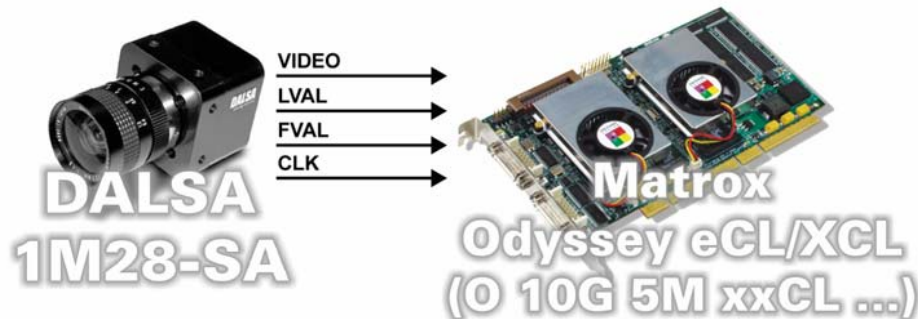
Interface Mode

- Continuous (Freerunning)
- Asynchronous reset (Triggered Mode with External Edge Triggered Control)

Camera Interface Briefs

Mode 1: Continuous

- $1024 \times 1024 \times 10\text{-bit}$ @ 27 fps (full scanning).
- Camera Link BASE interface (Single tap).
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, CLK and video signal from camera.
- DCF used: [1M28SA1024x1024_10bitCon.DCF](#) (full scanning)
- DCF used: [1M28SA512x512_10bitCon.DCF](#) (ROI: 512 x 512 @ 105 fps)



Mode 2: Asynchronous reset

- $1024 \times 1024 \times 10\text{-bit}$.
- Camera Link BASE interface (Single tap).
- Matrox Odyssey eCL/XCL receiving external trigger signal.
- Matrox Odyssey eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, CLK and video signal from camera.
- DCF used: [1M28SA1024x1024_10bitAsync.DCF](#) (full scanning)
- DCF used: [1M28SA512x512_10bitAsync.DCF](#) (ROI: 512 x 512)

Continued...

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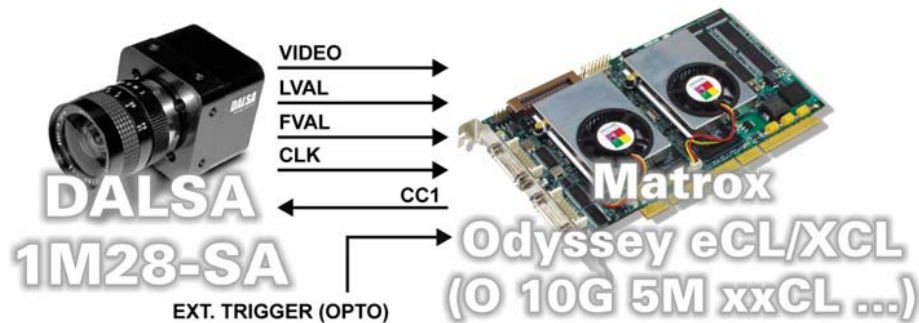
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Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Odyssey eCL/XCL receives the continuous video from the camera at 27 (full scanning) or 105 fps (ROI). The frame rate depends on the ROI size and internal exposure time. Refer to the camera manual for additional information.
- **Camera settings:** Refer to the camera manual for additional information on PFRremote software. For the **1M28SA512x512_10bitCon.DCF**, select the **Window** menu tab in PFRremote software, select **Use Mask ROI (MROI)** and set **width (w)** and **height (h)** to **512**.

Mode 2: Asynchronous reset

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal and the exposure time period.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE1 (CC1) signal is the exposure time. The exposure time can be modified in the DCF using Matrox Intellicam, with the ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera settings:** Refer to the camera manual for additional information on PFRremote software. For this mode, set camera to **Combined Trigger Exposure** and check **Sync Pulse High Active** checkbox. For the **1M28SA512x512_10bitCon.DCF**, select the **Window** menu tab in PFRremote software, select **Use Mask ROI (MROI)** and set **width (w)** and **height (h)** to **512**.

Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous

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

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*Cabling details for the
interface modes*

Cabling Requirements

Mode 2: 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 External auxiliary I/O connector 1 adapter board.

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, 2006-2011.

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