

# Matrox Odyssey Xpro

## Camera Interface Application Note

### DALSA 1M28-SA

January 30, 2007

Basics about the  
camera

#### 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

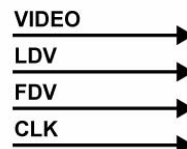
#### Interface Mode

- Continuous (Free running)
- 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 Xpro 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)



\*Matrox Odyssey Xpro main board  
with Camera Link frame grabber module

##### Mode 2: Asynchronous reset

- $1024 \times 1024 \times 10\text{-bit}$ .
- Camera Link BASE interface (Single tap).
- Matrox Odyssey Xpro receiving external trigger signal.
- Matrox Odyssey Xpro sending EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving LVAL, FVAL, CLK and video signal from camera.

Continued...

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

Basics about the  
interface modes

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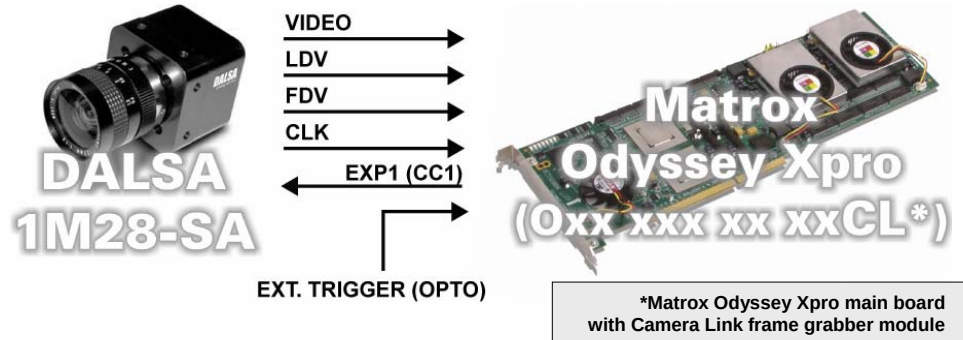
January 30, 2007

Basics about the  
interface modes

#### Camera Interface Briefs (cont.)

##### Mode 2: Asynchronous reset

- DCF used: [1M28SA1024x1024\\_10bitAsync.DCF](#) (full scanning)
- DCF used: [1M28SA512x512\\_10bitAsync.DCF](#) (ROI: 512 x 512 )



Specifics about the  
interface modes

#### Camera Interface Details

##### Mode 1: Continuous

- **Frame Rate:** Matrox Odyssey Xpro 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 PFRemote software. For the **1M28SA512x512\_10bitCon.DCF**, select the **Window** menu tab in PFRemote 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 PFRemote 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 PFRemote software, select **Use Mask ROI (MROI)** and set **width (w)** and **height (h)** to **512**.

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Cabling details for the  
interface modes

Cabling details for the  
interface modes

#### Cabling Requirements

##### Mode 1: Continuous

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

#### 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, 2007-2011.

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