

# Matrox Odyssey Xpro

## Camera Interface Application Note

### TVI COLIBRI 2048CL

May 17, 2005

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: up to 2048 pixels/line @ 14k line per second.
- Camera Link BASE interface (RGB 8-bit).
- External sync.
- External exposure control.
- 30 MHz pixel clock rate.

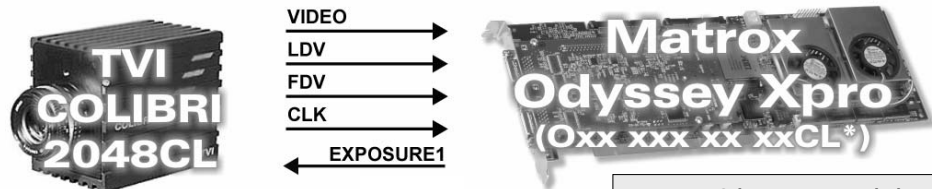
#### Interface Mode

- Fixed line scan rate (free run mode)
- Variable line scan rate (encoder input)

#### Camera Interface Briefs

##### Mode 1: Fixed line scan rate

- Up to 2048 pixels/line.
- Camera Link BASE interface (RGB 8-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Odyssey Xpro sending periodic EXPOSURE1 (NEW FRAME - CC1) signal to camera.
- Matrox Odyssey Xpro receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 30 MHz) and video data from camera.
- DCF used: COLIBRI2048CL\_2048\_8bitFLS.DCF



\*Matrox Odyssey Xpro main board with Camera Link grab module

##### Mode 2: Variable line scan rate

- Up to 2048 pixels/line.
- Camera Link BASE interface (RGB 8-bit).
- DCF configured for 1000 lines per virtual frame.
- Matrox Odyssey Xpro receiving external TTL line trigger signal.
- Matrox Odyssey Xpro sending EXPOSURE1 (NEW FRAME - CC1) signal to camera.
- Matrox Odyssey Xpro receiving HSYNC (LVAL), PIXEL CLOCK (STROBE @ 30 MHz) and video data from camera.

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## Camera Interface Application Note

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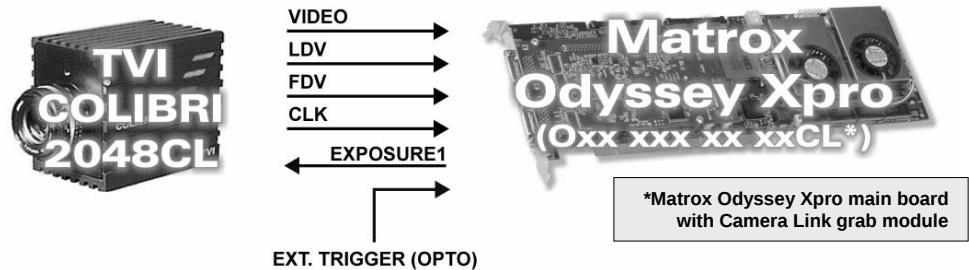
May 17, 2005

Basics about the interface modes

#### Camera Interface Briefs (continued)

##### Mode 2: Variable line scan rate

- DCF used: COLIBRI2048CL\_2048\_8bitVLS.DCF

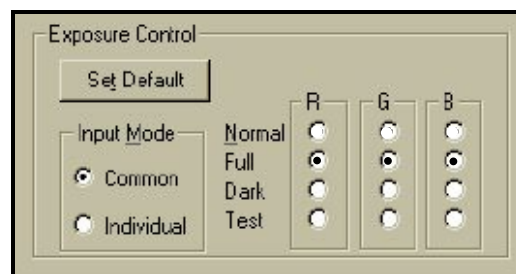


Specifics about the interface modes

#### Camera Interface Details

##### Mode 1: Fixed line scan rate

- Line rate:** The frequency of the periodic EXPOSURE1 (NEW FRAME - CC1) signal determines the camera's line rate. The EXPOSURE1 (NEW FRAME - CC1) signal period is set in the DCF to **170  $\mu$ s** which translates into a **5.88 kHz** line rate. The maximum line rate for this camera equals **14.65 kHz**.
- Exposure time:** For **NEW FRAME - CC1** mode the exposure time is initiated by the falling edge of the periodic EXPOSURE1 (NEW FRAME - CC1) signal. The default exposure time for this DCF equals **100  $\mu$ s**. Minimum exposure time per line for this DCF is **2  $\mu$ s**. The exposure time can be modified in the DCF using Matrox Intellicam, ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Consult the respective manual for more information.
- Camera communication:** Set the **Exposure Control** mode (as shown below) via the **TVI CamConf** Camera Link communication software. Refer to the camera manual for additional information.



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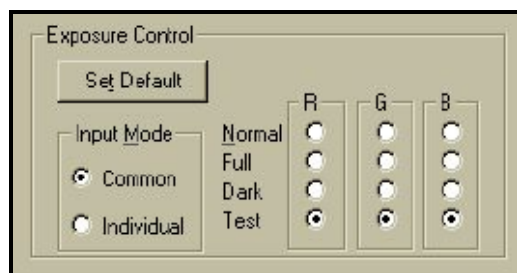
May 17, 2005

Specifics about the  
interface modes

#### Camera Interface Details (continued)

##### Mode 2: Variable line scan rate

- **Line rate:** The line rate is controlled by the frequency of the external TTL line trigger signal. The line trigger signal period must be larger than the maximum line rate of the camera, which is **71  $\mu$ s**.
- **Exposure time:** Refer to Mode 1: Fixed line scan rate.
- **Camera communication:** Set the **Exposure Control** mode (as shown below) via the **TVI CamConf** Camera Link communication software. Refer to the camera manual for additional information.



Cabling details for the  
interface modes

#### Cabling Requirements

##### Mode 1: Fixed line scan rate

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

##### Mode 2: Variable line scan rate

- **Cable and Connection:** Standard Camera Link.
- **External trigger:** External line trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 7 and 2) on the External I/O adapter bracket:

##### EXTERNAL I/O BRACKET (9-pin connector)

| Pin Name       | Pin no. | External Trigger Source     |
|----------------|---------|-----------------------------|
| OPTO_AUX_IN0 + | 07      | ← LINE TRIGGER (TTL FORMAT) |
| OPTO_AUX_IN0 - | 02      | ← LINE TRIGGER (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 Electronic Systems, 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, 2005-2011.

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