

# Matrox Odyssey Xpro

## Camera Interface Application Note

### FLIR SYSTEMS ThermaCAM Phoenix July 28, 2006

Basics about the camera

#### Camera Descriptions

- Effective resolution:  $320 \times 256 \times 14\text{-bit}$  @ 60 fps.
- Single channel LVDS digital video output.
- Progressive or interlaced scan.
- Internal (separate) sync.
- External and internal exposure control.
- Up to 12.2727 MHz pixel clock rate.

#### Interface Mode

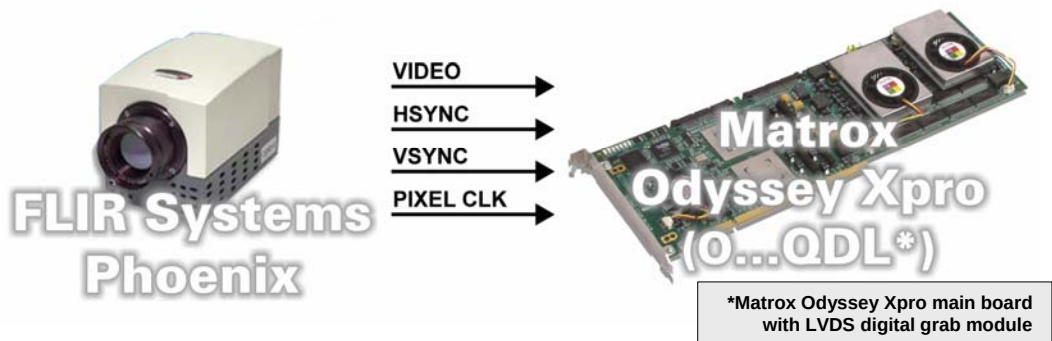
- Continuous

#### Camera Interface Briefs

##### Mode 1: Continuous

- $320 \times 256 \times 14\text{-bit}$  @ 60 fps.
- Single channel LVDS digital video.
- Progressive scan.
- Matrox Odyssey Xpro receiving HSYNC (LineSYNC) VSYNC (FrameSYNC), PIXEL CLOCK (PixelCLK) and video from camera.
- DCF used: [Phoenix320x256\\_14bitCon1.DCF](#) (6.1364 MHz)
- DCF used: [Phoenix320x256\\_14bitCon2.DCF](#) (12.2727 MHz)

Mode of operations as per Matrox Imaging (in parentheses as per camera manufacturer)  
Basics about the interface modes



Specifics about the interface modes

#### Camera Interface Details

##### Mode 1: Continuous

- **Frame Rate:** Matrox Odyssey Xpro receives the continuous video from the camera at 60 frames per second.
- **Exposure time:** Exposure time is inversely proportionate to the frame rate or determined by the camera's shutter setting. Refer to the camera manual for more information.
- **Camera Control:** The camera mode is set to **Continuous mode** in the camera control software. Refer to the camera manual for more information.

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*Cabling details for this interface mode*

#### Cabling Requirements

##### Mode 1: Continuous

- **Cable:** DBHD100-TO-OPEN (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 37-pin connector of the camera and the 100-pin connector of the Matrox Odyssey Xpro are as follows:

| FLIR ThermoCAM Phoenix<br>(37-pin connector – DB37M) |         |   | Matrox Odyssey Xpro<br>(100-pin connector) |         |
|------------------------------------------------------|---------|---|--------------------------------------------|---------|
| Pin name                                             | Pin no. |   | Pin name                                   | Pin no. |
| DATA 13+                                             | 32      | → | P0_LVDS_DATA_IN13+                         | 27      |
| DATA 13-                                             | 14      | → | P0_LVDS_DATA_IN13-                         | 28      |
| DATA 12+                                             | 31      | → | P0_LVDS_DATA_IN12+                         | 25      |
| DATA 12-                                             | 13      | → | P0_LVDS_DATA_IN12-                         | 26      |
| DATA 11+                                             | 30      | → | P0_LVDS_DATA_IN11+                         | 23      |
| DATA 11-                                             | 12      | → | P0_LVDS_DATA_IN11-                         | 24      |
| DATA 10+                                             | 29      | → | P0_LVDS_DATA_IN10+                         | 21      |
| DATA 10-                                             | 11      | → | P0_LVDS_DATA_IN10-                         | 22      |
| DATA 9+                                              | 28      | → | P0_LVDS_DATA_IN9+                          | 19      |
| DATA 9-                                              | 10      | → | P0_LVDS_DATA_IN9-                          | 20      |
| DATA 8+                                              | 27      | → | P0_LVDS_DATA_IN8+                          | 17      |
| DATA 8-                                              | 9       | → | P0_LVDS_DATA_IN8-                          | 18      |
| DATA 7+                                              | 26      | → | P0_LVDS_DATA_IN7+                          | 15      |
| DATA 7-                                              | 8       | → | P0_LVDS_DATA_IN7-                          | 16      |
| DATA 6+                                              | 25      | → | P0_LVDS_DATA_IN6+                          | 13      |
| DATA 6-                                              | 7       | → | P0_LVDS_DATA_IN6-                          | 14      |
| DATA 5+                                              | 24      | → | P0_LVDS_DATA_IN5+                          | 11      |
| DATA 5-                                              | 6       | → | P0_LVDS_DATA_IN5-                          | 12      |
| DATA 4+                                              | 23      | → | P0_LVDS_DATA_IN4+                          | 9       |
| DATA 4-                                              | 5       | → | P0_LVDS_DATA_IN4-                          | 10      |
| DATA 3+                                              | 22      | → | P0_LVDS_DATA_IN3+                          | 7       |
| DATA 3-                                              | 4       | → | P0_LVDS_DATA_IN3-                          | 8       |
| DATA 2+                                              | 21      | → | P0_LVDS_DATA_IN2+                          | 5       |
| DATA 2-                                              | 3       | → | P0_LVDS_DATA_IN2-                          | 6       |
| DATA 1+                                              | 34      | → | P0_LVDS_DATA_IN1+                          | 3       |
| DATA 1-                                              | 16      | → | P0_LVDS_DATA_IN1-                          | 4       |
| DATA 0+                                              | 33      | → | P0_LVDS_DATA_IN0+                          | 1       |
| DATA 0-                                              | 15      | → | P0_LVDS_DATA_IN0-                          | 2       |
| PixelCLK+                                            | 37      | → | P0_LVDS_CLK, IN+                           | 39      |
| PixelCLK-                                            | 19      | → | P0_LVDS_CLK, IN-                           | 40      |
| Continued...                                         |         |   |                                            |         |

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## Camera Interface Application Note

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*Cabling details for this interface mode*

#### Cabling Requirements (continued)

##### Mode 1: Continuous

**ThermaCAM Phoenix  
(37-pin connector – DB37M)**

| <i>Pin name</i> | <i>Pin no.</i> |
|-----------------|----------------|
| LineSYNC+       | 36             |
| LineSYNC-       | 18             |
| FrameSYNC+      | 35             |
| FrameSYNC-      | 17             |
| GND             | 1              |

**Matrox Odyssey Xpro  
(100-pin connector)**

| <i>Pin name</i>   | <i>Pin no.</i> |
|-------------------|----------------|
| P0_LVDS_HSYNC_IN+ | 33             |
| P0_LVDS_HSYNC_IN- | 34             |
| P0_LVDS_VSYNC_IN+ | 35             |
| P0_LVDS_VSYNC_IN- | 36             |
| GROUND            | 50             |

**ThermaCAM Phoenix  
(37-pin connector – DB37M)**

|             |    |
|-------------|----|
| FieldSYNC+  | 20 |
| FieldSYNC - | 02 |

**Matrox Odyssey Xpro  
(44-pin connector – HD44M)**

|                          |    |
|--------------------------|----|
| LVDS/TTL_AUX(TRIG)_IN1 + | 06 |
| LVDS/TTL_AUX(TRIG)_IN1 - | 05 |

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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