

# Matrox Odyssey Xpro

## Camera Interface Application Note

### SENTECH STC-A33A

August 2, 2007

Basics about the  
camera

#### Camera Descriptions

- Effective resolution:  $648 \times 494 \times 8\text{-bit}$  @ 60 fps.
- Analog monochrome video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 24.54 MHz pixel clock rate.

#### Interface Mode

- Continuous
- Pseudo- continuous (Pulse Width Trigger with V-Reset)
- Asynchronous reset (Pulse Width Trigger with V-Reset)

#### Camera Interface Briefs

##### Mode 1: Continuous

- $648 \times 494 \times 8\text{-bit}$  @ 60 fps.
- Analog monochrome video.
- Matrox Odyssey Xpro receiving Sync and video signals from camera.
- DCF used: [STCA33A\\_648x494Con.DCF](#)



VIDEO



##### Mode 2: Pseudo-continuous

- Up to  $648 \times 494 \times 8\text{-bit}$ .
- Analog monochrome video
- Matrox Odyssey Xpro sending EXPOSURE1 (TRIG) signal to camera to initiate and control the exposure.
- Matrox Odyssey Xpro receiving Sync and video signals from camera.
- DCF used: [STCA33A\\_648x494Pcon.DCF](#)

Continued...

\*Matrox Odyssey Xpro main board  
with analog frame grabber module

# Matrox Odyssey Xpro

## Camera Interface Application Note

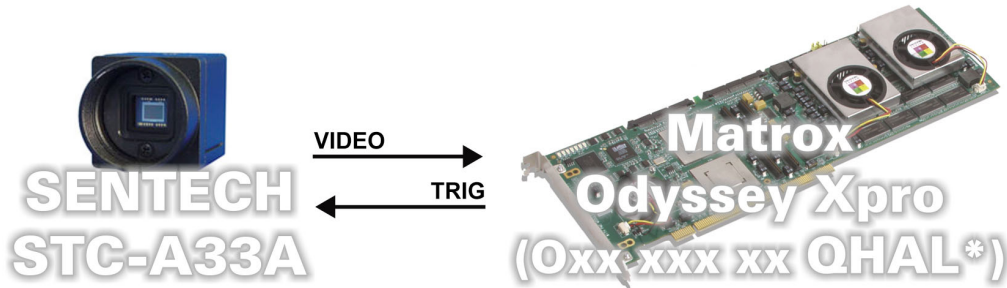
### SENTECH STC-A33A

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Basics about the  
interface modes

#### Camera Interface Briefs

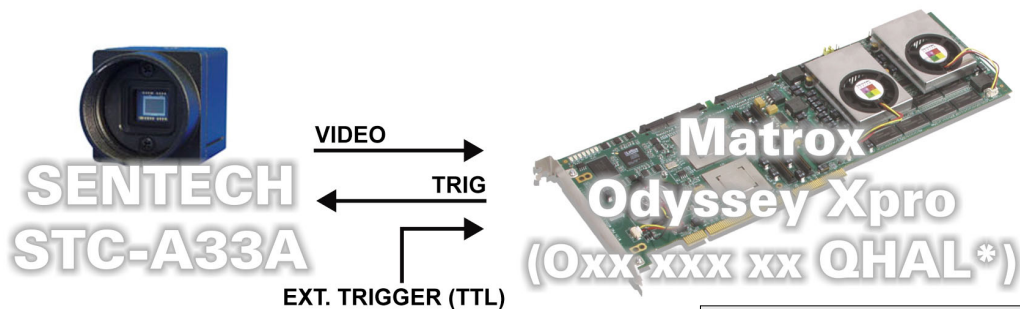
##### Mode 2: Pseudo-continuous



\*Matrox Odyssey Xpro main board  
with analog frame grabber module

##### Mode 3: Asynchronous reset

- Up to  $648 \times 494 \times 8$ -bit.
- Analog monochrome video
- Matrox Odyssey Xpro receiving external trigger signal.
- Matrox Odyssey Xpro sending EXPOSURE1 (TRIG) signal to camera to initiate and control the exposure.
- Matrox Odyssey Xpro receiving Sync and video signals from camera.
- DCF used: [STCA33A\\_648x494Async.DCF](#)



\*Matrox Odyssey Xpro main board  
with analog frame grabber module

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 (no shutter) or determined by the shutter setting. Refer to the camera manual for more information.

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Specifics about the  
interface modes

#### Camera Interface Details (cont.)

##### Mode 1: Continuous

- **Camera switch settings:** Refer to the camera manual for additional information. External and internal switches for this mode should be set as follows:

| External DIP Switch settings                |     |     |     |     |     |     |     |     |     |
|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1                                           | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| OFF                                         | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| Internal Sync. Mode Switch: Set to INTERNAL |     |     |     |     |     |     |     |     |     |

##### Mode 2: Pseudo-continuous

- **Frame rate:** The Frame Rate is determined by the frequency of Timer1. The maximum possible frame rate is dependent on the exposure time as well as the camera's frame readout period.
- **Exposure time:** The width (active duration) of the EXPOSURE1 (TRIG) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera settings:** Refer to the camera manual for additional information. Switches for this mode should be set as follows:

| External DIP Switch settings                |     |     |    |     |     |     |     |     |     |
|---------------------------------------------|-----|-----|----|-----|-----|-----|-----|-----|-----|
| 1                                           | 2   | 3   | 4  | 5   | 6   | 7   | 8   | 9   | 10  |
| OFF                                         | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF |
| Internal Sync. Mode Switch: Set to EXTERNAL |     |     |    |     |     |     |     |     |     |

##### Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The maximum possible frame rate is dependent on the exposure time as well as the camera's frame readout period.
- **Exposure time:** The width (active duration) of the EXPOSURE1 (TRIG) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera settings:** Refer to *Mode 2: Pseudo-continuous*.

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## Camera Interface Application Note

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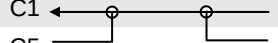
Cabling details for the  
interface modes

#### Cabling Requirements

##### Mode 1: Continuous

- **Cable and Connection:** DVI-TO-8BNC/O (open ended) cable required for video and synchronization signals. The connections between the camera's 12-pin connector and the DVI connector of the Matrox Odyssey Xpro are as follows:

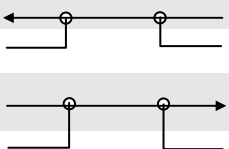
| Matrox Odyssey<br>(DVI analog input connector-0) |         | SENTECH STC-A33A<br>(12-pin connector) |         |
|--------------------------------------------------|---------|----------------------------------------|---------|
| Pin name                                         | Pin no. | Pin name                               | Pin no. |
| CH0_INPUTA                                       | C1      | VIDEO                                  | 04      |
| GROUND                                           | C5      | VIDEO OUT GROUND                       | 03      |



##### Mode 2: Pseudo-continuous

- **Cable and Connection:** DVI-TO-8BNC/O (open ended) cable required for video and synchronization signals. The connections between the camera's 12-pin connector and the DVI connector of the Matrox Odyssey Xpro are as follows:

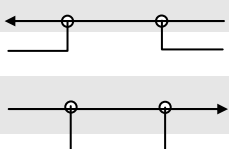
| Matrox Odyssey<br>(DVI analog input connector-0) |         | SENTECH STC-A33A<br>(12-pin connector) |         |
|--------------------------------------------------|---------|----------------------------------------|---------|
| Pin name                                         | Pin no. | Pin name                               | Pin no. |
| CH0_INPUTA                                       | C1      | VIDEO                                  | 04      |
| GROUND                                           | C5      | VIDEO OUT GROUND                       | 03      |
| P0_TTL_AUX<br>(EXP_OUT)                          | 23      | TRIG IN                                | 11      |
| GROUND                                           | 11      | TRIG IN GROUND                         | 12      |



##### Mode 3: Asynchronous reset

- **Cable and Connection:** DVI-TO-8BNC/O (open end) cable required for video signal. The connection between the 12-pin connector of the camera and the Matrox Odyssey are as follow:

| Matrox Odyssey<br>(DVI analog input connector-0) |         | SENTECH STC-A33A<br>(12-pin connector) |         |
|--------------------------------------------------|---------|----------------------------------------|---------|
| Pin name                                         | Pin no. | Pin name                               | Pin no. |
| CH0_INPUTA                                       | C1      | VIDEO                                  | 04      |
| GROUND                                           | C5      | VIDEO OUT GROUND                       | 03      |
| P0_TTL_AUX<br>(EXP_OUT)                          | 23      | TRIG IN                                | 11      |
| GROUND                                           | 11      | TRIG IN GROUND                         | 12      |



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*Cabling details for the  
interface modes*

#### Cabling Requirements (cont.)

##### *Mode 3: Asynchronous reset*

- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 7 and 2) on the external trigger input connector 1 (cable adapter board).

##### **External trigger input**

##### **(9-pin connector)**

##### **External Trigger Source**

|            |    |   |        |    |
|------------|----|---|--------|----|
| OPTO TRIG+ | 07 | ← | SIGNAL | -- |
| OPTO TRIG- | 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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