

Matrox Odyssey Xpro

Camera Interface Application Note

SENTECH STC-1100b

February 28, 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: 640 x 480 x 8-bit @ 30/60 fps.
- Single channel analog video output.
- Interlaced or progressive scan.
- Internal (composite) or external sync.
- Internal or external exposure control.
- 24.5454/12.2726MHz pixel clock rate.

Interface Mode

- Continuous
- Pseudo-continuous
- Asynchronous reset (Variable Integration Shutter trigger)

Camera Interface Briefs

Mode 1: Continuous

- 640 x 480 x 8-bit @ 60 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Odyssey Xpro receiving video signals from camera.
- DCF used: [STC1100b_640x480_ProgCon.DCF](#)



VIDEO



*Matrox Odyssey Xpro main board
with analog grab module

Mode 2: Pseudo-continuous

- 640 x 480 x 8-bit.
- Single channel analog video output.
- Progressive scan.
- Matrox Odyssey Xpro sending periodic EXPOSURE1 (TRIGIN) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving video signals from camera.
- DCF used: [STC1100b_640x480_ProgPcon.DCF](#)



VIDEO

TRIG-IN



*Matrox Odyssey Xpro main board
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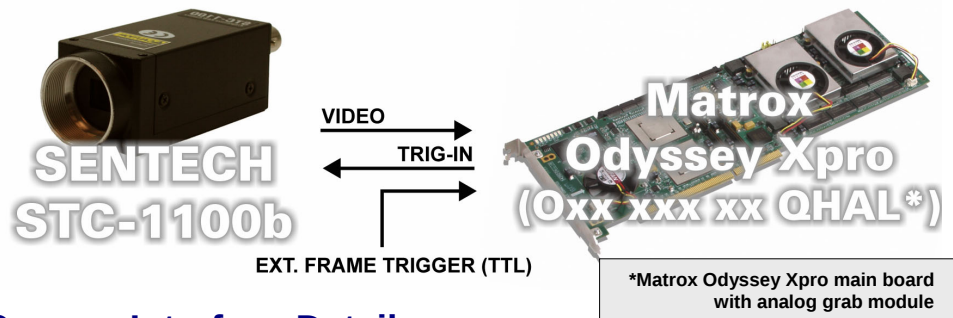
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Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 3: Asynchronous reset

- 640 x 480 x 8-bit.
- Single channel analog video output.
- Progressive scan.
- Matrox Odyssey Xpro receiving external trigger signal.
- Matrox Odyssey Xpro sending EXPOSURE1 (TRIGIN) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving video signals from camera.
- DCF used: [STC1100b_640x480_ProgAsync.DCF](#)



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.
- **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
ON	ON	OFF	ON	As desired (shutter speed)					OFF
Internal Sync. Mode Switch: Set to INTERNAL									

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Specifics about
the interface
modes

Camera Interface Details (cont.)

Mode 2: Pseudo-continuous

- **Frame Rate** The frame rate is determined by the frequency of the EXPOSURE1 (TRIGIN) setting in the DCF.
- **Exposure time:** The active period of the EXPOSURE1 (TRIGIN) signal is the exposure time. The exposure time can be modified using Matrox Intellicam, ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera switch 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
ON	OFF	OFF	OFF	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.
- **Exposure time:** The active period of the EXPOSURE1 (TRIGIN) signal is the exposure time. The exposure time can be modified using Matrox Intellicam, ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera switch 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
ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Internal Sync. Mode Switch: Set to EXTERNAL									

Cabling
details for the
interface modes

Cabling Requirements

Mode 1: Continuous

- **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
(DVI analog input connector-0)

SENTECH STC-1100b
(12-pin connector)

Pin name Pin no.

Pin name Pin no.

CH0_INPUTA C1

VIDEO 04

GROUND C5

VIDEO OUT GROUND 03



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Matrox Odyssey (DVI analog input connector-0)			SENTECH STC-1100b (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 (EXP_OUT)	23	→	TRIG IN	07
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 (DVI analog input connector-0)			SENTECH STC-1100b (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 (EXP_OUT)	23	→	TRIG IN	07
GROUND	11	→	TRIG IN GROUND	12

- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 2 and 7) 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, 2006-2011.

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