

# Matrox Odyssey Xpro

## Camera Interface Application Note

### TOSHIBA IK-TF7C

December 2, 2005

Basics about the  
camera

#### Camera Descriptions

- Effective Resolution: 1024 × 768 × 8-bit @ 30 fps.
- Camera Link BASE interface (8-bit RGB).
- Progressive scan RGB.
- Internal sync.
- Internal or external exposure control.
- 29.5 MHz pixel clock rate.

#### Interface Modes

- Continuous
- Pseudo-continuous (Pulse Width Trigger Sync RESET)
- Asynchronous reset (Pulse Width Trigger Sync RESET)

#### Camera Interface Briefs

##### Mode 1: Continuous

- 1024 × 768 × 8-bit @ 30 fps.
- Camera Link BASE interface (8-bit RGB).
- Matrox Odyssey Xpro receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 29.5 MHz) and video signals from camera.
- DCF: [IKTF7C\\_1024x768\\_8bit1tapCon.DCF](#)



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

##### Mode 2: Pseudo-continuous

- 1024 × 768 × 8-bit.
- Camera Link BASE interface (8-bit RGB).
- Matrox Odyssey Xpro sending periodic EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 29.5 MHz) and video signals from camera.
- DCF: [IKTF7C\\_1024x768\\_8bit1tapPcon.DCF](#)

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

Basics about the  
interface modes

# Matrox Odyssey Xpro

## Camera Interface Application Note

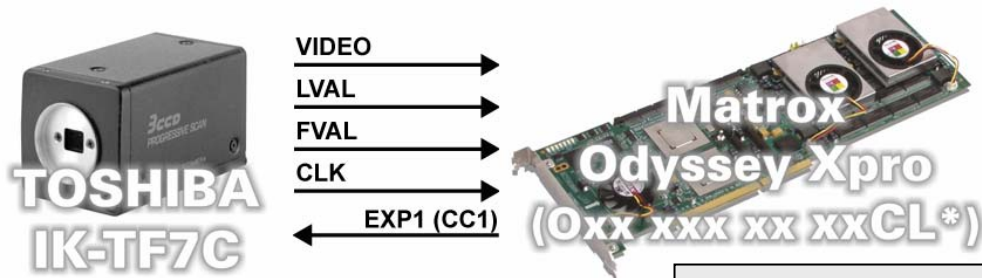
### TOSHIBA IK-TF7C

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Basics about the  
interface modes

#### Camera Interface Briefs (continued)

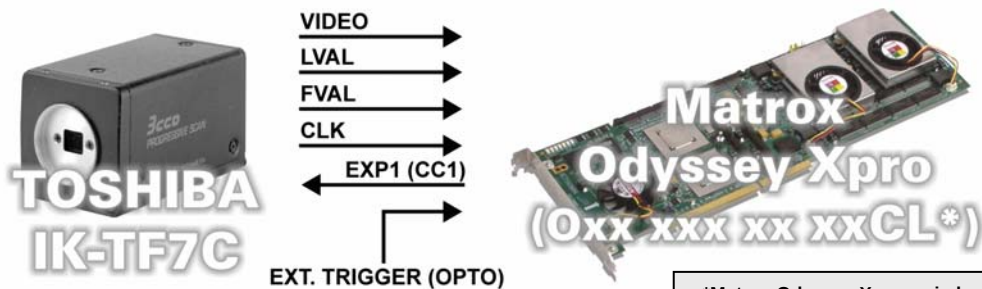
##### Mode 2: Pseudo-continuous



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

##### Mode 3: Asynchronous reset

- 1024 × 768 × 8-bit.
- Camera Link BASE interface (8-bit RGB).
- Progressive scan.
- Matrox Odyssey Xpro receiving external OPTO trigger signal.
- Matrox Odyssey Xpro sending EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Odyssey Xpro receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 29.5 MHz) and video signals from camera.
- DCF used: [IKTF7C\\_1024x768\\_8bit1tapAsync.DCF](#)



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

Specifics about the  
interface modes

#### Camera Interface Details

##### Mode 1: Continuous

- **Frame Rate:** With this DCF, the Matrox Odyssey Xpro receives the continuous video from the camera at 30 frames per second.
- **Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.

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## Camera Interface Application Note

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Specifics about the  
interface modes

### Camera Interface Details (cont.)

#### Mode 1: Continuous

- **Camera Control:** The camera mode is set using the Toshiba on-screen utility. Refer to the camera manual for the command descriptions.

| Mode    | Setting |
|---------|---------|
| Shutter | MANU    |

#### Mode 2: Pseudo-continuous

- **Frame Rate:** With this DCF, the Matrox Odyssey Xpro receives the pseudo-continuous video from the camera. Frame rate is controlled by the frequency of the EXPOSURE1 (CC1) signal.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE1 (CC1) signal is the exposure time. To modify the exposure time, change the **active** duration of Timer1 in Matrox Intellicam, ONL imCamControl() or imDigControl() function or with the MIL MdigControl() function. It is recommended that the total period (**active** and **inactive**) of Timer1 be set to greater than one frame duration. Furthermore, any increase or decrease to the exposure time will respectively decrease or increase the frame rate.
- **Camera Control:** The camera mode is set using the Toshiba on-screen utility. Refer to the camera manual for the command descriptions.

| Mode    | Setting      |
|---------|--------------|
| Shutter | E.TRIG PW.SR |

#### Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The period between external trigger signals must be larger than the total duration of one frame.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE1 (CC1) signal is the exposure time. To modify the exposure time, change the pulse duration of Timer1 in Matrox Intellicam, ONL imCamControl() or imDigControl() function or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera Control:** The camera mode is set using the Toshiba on-screen utility. Refer to the camera manual for the command descriptions.

| Mode    | Setting      |
|---------|--------------|
| Shutter | E.TRIG PW.SR |

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Cabling details for the  
interface modes

#### Cabling Requirements

##### **Mode 1 and 2: Continuous and Pseudo-continuous**

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

##### **Mode 3: 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 Expanded I/O adapter bracket.

##### **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, 2005-2011.

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