

# Matrox Solios eCL/XCL

## Camera Interface Application Note

PULNiX TM-1020-15CL

September 19, 2006

*Basics about the  
camera*

### Camera Descriptions

- Effective resolution:  $1006 \times 1016 \times 8\text{-bit}$  @ 15 fps (maximum).
- Camera Link BASE interface (single tap).
- Progressive scan.
- Internal sync.
- Internal exposure control.
- 20 MHz pixel clock rate.

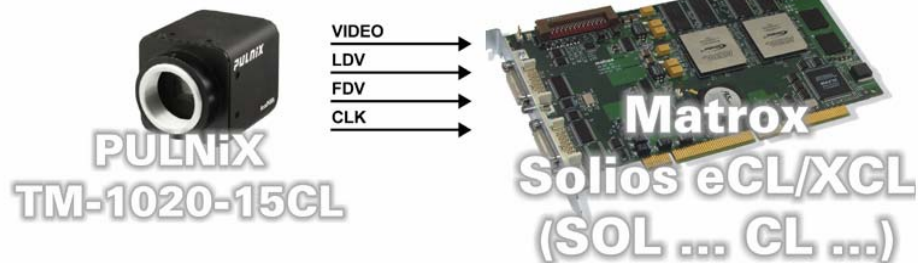
### Interface Modes

- Continuous
- Asynchronous reset – external & internal trigger (Pulse width control)

### Camera Interface Briefs

#### Mode 1: Continuous

- $1006 \times 1016 \times 8\text{-bit}$  @ 15 fps.
- Camera Link BASE interface (single tap).
- Matrox Solios eCL/XCL receiving LDV, FDV, CLK and video from camera.
- DCF used: [TM102015CL1006x1016\\_8bitCon.DCF](#)



#### Mode 2: Asynchronous Reset – external trigger

- $1006 \times 1016 \times 8\text{-bit}$ .
- Camera Link BASE interface (single tap).
- Matrox Solios eCL/XCL receiving external trigger signal.
- Matrox Solios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate the exposure.
- Matrox Solios eCL/XCL receiving LDV, FDV, CLK and video from camera.
- DCF used: [TM102015CL1006x1016\\_8bitAsyncEXT.DCF](#)

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

*Basics about the  
interface modes*

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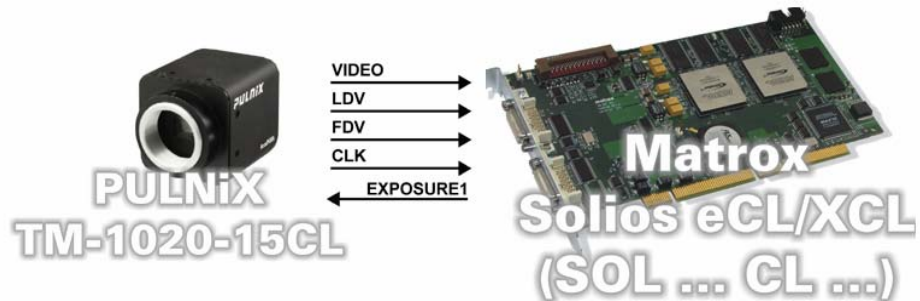
PULNiX TM-1020-15CL

September 19, 2006

Basics about the  
interface modes

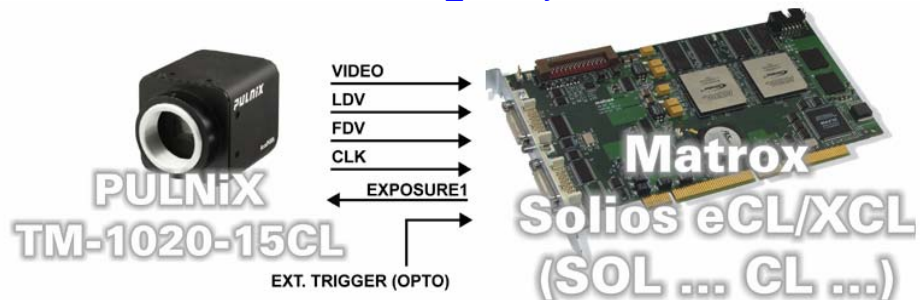
### Camera Interface Briefs (cont.)

#### Mode 2: Asynchronous Reset – external trigger



#### Mode 3: Asynchronous Reset – internal trigger

- 1006 × 1016 × 8-bit.
- Camera Link BASE interface (single tap).
- Progressive scan.
- Matrox Solios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate the exposure.
- Matrox Solios eCL/XCL receiving LDV, FDV, CLK and video from camera.
- DCF used: [TM102015CL1006x1016\\_8bitAsyncINT.DCF](#)



Specifics about the  
interface modes

### Camera Interface Details

#### Mode 1: Continuous

- **Frame Rate:** Matrox Solios eCL/XCL receives the continuous video from the camera at 15 frames per second (full resolution).
- **Exposure time:** Exposure time is determined by the camera shutter setting. Refer to the camera manual for more information.
- **Camera switch settings:** Refer to the camera manual.

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PULNiX TM-1020-15CL

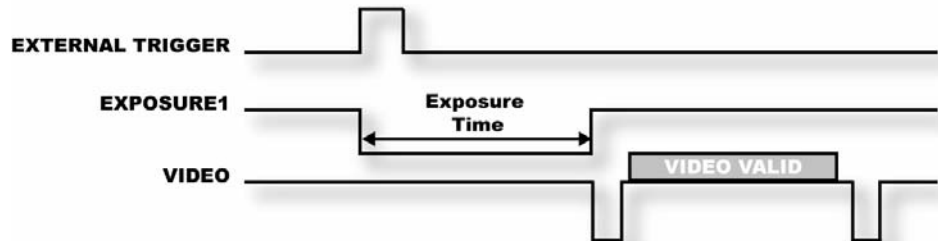
September 19, 2006

Specifics about the  
interface modes

### Camera Interface Details (cont.)

#### *Mode 2: Asynchronous Reset – external trigger*

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (CC1) signal, which can be modified in the DCF using Matrox Intellicam or the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera switch settings:** Refer to the camera manual.
- **Timing diagram:**



#### *Mode 3: Asynchronous Reset – internal trigger*

- **Frame rate:** The frame rate is determined by the frequency of the EXPOSURE1 () signal.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (CC1) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam or the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera switch settings:** Refer to the camera manual.

### Cabling Requirements

#### *Mode 1 and 3: Continuous and Asynchronous reset – internal trigger*

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

Cabling details for the  
interface modes

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## Camera Interface Application Note

### PULNiX TM-1020-15CL

### September 19, 2006

Cabling details for the  
interface modes

#### Cabling Requirements (cont.)

##### Mode 2: Asynchronous reset – external trigger

- **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, 2006-2011.

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