Matrox Odyssey eCL/XCL

Camera Interface Application Note

ADIMEC 1000mCL August 2, 2006

Basics about the camera

Camera Descriptions

- Effective resolution: 1004 × 1004 × 8 or 10-bit @ 50 fps.
- Camera Link BASE interface (Single or Dual tap).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 40 MHz pixel clock rate.

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

Interface Mode

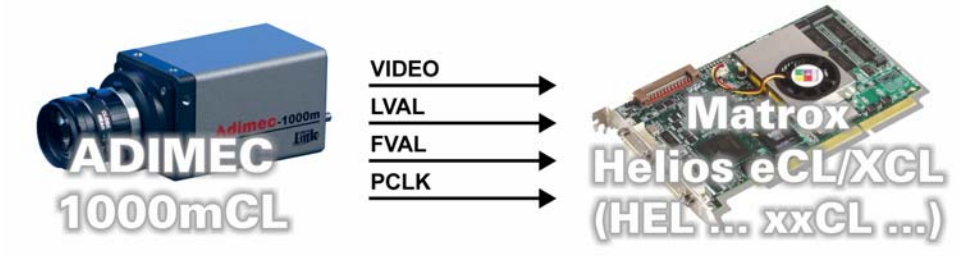
- Continuous
- Asynchronous reset (Control)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 992 × 1002 × 10-bit @ 50 fps.
- Camera Link BASE interface (Dual tap).
- Matrox Odyssey eCL/XCL receiving LVAL, FVAL, PCLK and video from camera.
- DCF used: 1000mCL992x1002_10bitCon.DCF



Mode 2: Asynchronous reset

- 992 × 1002 × 10-bit.
- Camera Link BASE interface (Dual tap).
- Matrox Odyssey eCL/XCL receiving external trigger signal.
- Matrox Odyssey eCL/XCL sending CC1) signal to camera to initiate and control the exposure time.
- Matrox Odyssey eCL/XCL receiving LDV, FDV, CLK and video from camera.

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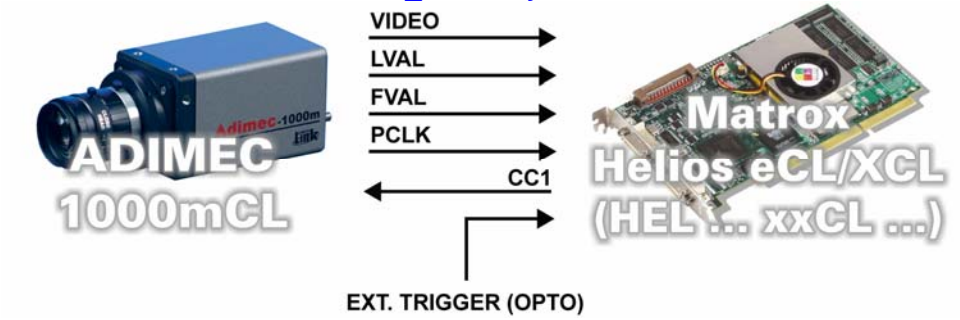
Basics about the interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset

- DCF used: 1000mCL992x1002_10bit Async.DCF



Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Odyssey eCL/XCL receives the continuous video from the camera at 50 frames per second.
- **Exposure time:** Exposure time (Integration time - IT) is set using the Windows HyperTerminal utility. Refer to the camera manual for the ASCII command descriptions.
- **Camera settings:** The camera modes are set as shown below using the CLSERMTX utility.

Mode	Setting	Description
OR - Output Data resolution	10	10-bits
MO – Camera Operating Mode	4	Continuous mode

Mode 2: 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 greater than the duration of the desired exposure time plus the frame readout period. Refer to the camera manual for more information.
- **Exposure time:** The width (rising edge to failing edge) of the CC1 signal is the exposure time, which can be modified in the DCF using Matrox Intellicam, with the ONL imCamControl() or imDigControl() function, or with the MIL MdigControl() function. Consult the respective manual for more information.

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Specifics about the interface modes

Camera Interface Details (cont.)

Mode 2: Asynchronous Reset

- **Camera settings:** The camera modes are set as shown below using the Windows HyperTerminal utility.

Mode	Setting	Description
OR - Output Data resolution	10	10-bits
MO – Camera Operating Mode	5	Control mode

Cabling details for the interface modes

Cabling Requirements

Mode 1: Continuous

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

Mode 2: 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 DCF(s) mentioned in this application note can be found on our FTP site (ftp.matrox.com/pub/imaging/). 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.

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