

Matrox Helios eCL/XCL

Camera Interface Application Note

BASLER A202k

August 7, 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: $1004 \times 1004 \times 10\text{-bit}$ @ 48 fps.
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 40 MHz pixel clock rate.

NOTE: Achieving a 1004×1004 resolution requires using **version 6** or higher of the BASLER 202k camera. Contact BASLER for more information.

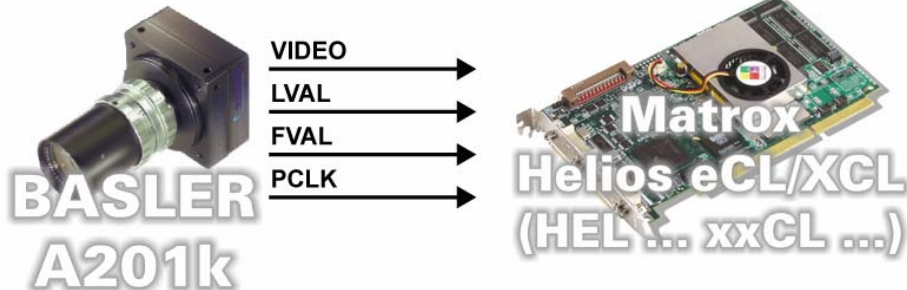
Interface Mode

- Continuous (Free-run)
- Asynchronous reset (pulse width control)

Camera Interface Briefs

Mode 1: Continuous

- $1004 \times 1004 \times 10\text{-bit}$ @ 48 fps (full resolution).
- $502 \times 502 \times 10\text{-bit}$ @ 70 fps (horizontal & vertical binning).
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, CLK and video signal from camera.
- DCF used: [A202k1004x1004_10bit2tapsCon.DCF](#)
- DCF used: [A202k502x502_10bit2tapsCon.DCF](#)



Mode 2: Asynchronous reset

- $1004 \times 1004 \times 10\text{-bit}$ (full resolution).
- $502 \times 502 \times 10\text{-bit}$ (horizontal & vertical binning).
- Camera Link BASE interface (Dual tap).
- Progressive scan.
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending EXPOSURE1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Helios eCL/XCL receiving LVAL, FVAL, PCLK and video signal from camera.

Continued...

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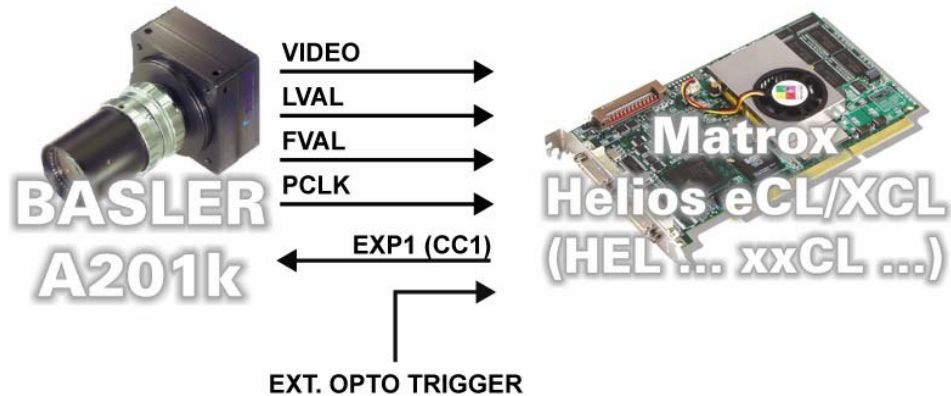
August 7, 2006

Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset

- DCF used: [A202k1004x1004_10bit2tapsAsync.DCF](#)
- DCF used: [A202k502x502_10bit2tapsAsync.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate and Exposure time:** Matrox Helios eCL/XCL receives the continuous video from the camera at 48 FPS (at full resolution) or 70 FPS (horizontal & vertical binning). This frame rate is dependent on the Exposure and Frame Rate settings in the Basler Camera Configuration Tool Plus (CCT+). Refer to the camera manual for additional information.
- **Camera settings:** Refer to the camera manual for information.

Mode 2: Asynchronous reset

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal and the exposure time period.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (CC1) signal is the exposure time. The exposure time 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 information.

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*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 External auxiliary I/O connector 1 adapter board.

EXPANDED I/O BRACKET

(9-pin connector)

OPTOTRIG +	07
OPTOTRIG -	02

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External Trigger Source

SIGNAL	--
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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