

Matrox Helios eCL/XCL

Camera Interface Application Note

SVS-VISTEK 285HQE-12

October 10, 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: $1360 \times 1024 \times 12\text{-bit}$ @ 10.5 fps (no binning).
- Camera Link BASE interface (single tap).
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 20.27 / 10.14 MHz pixel clock rate.

Interface Mode

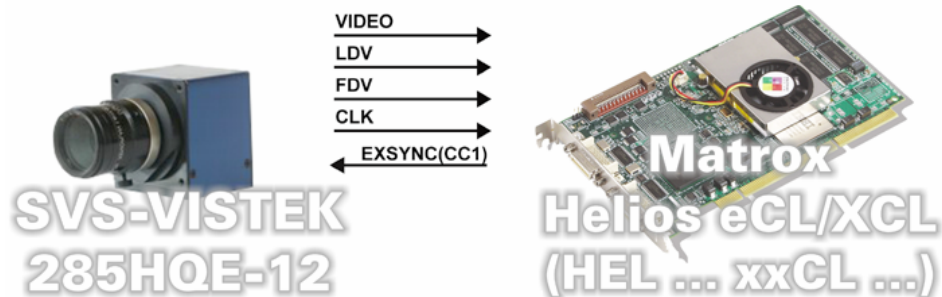
- Continuous (Free Running)
- Asynchronous reset (Pulse width control)

Camera Interface Briefs

Mode 1: Continuous

- Up to $1392 \times 1030 \times 12\text{-bit}$ (no binning).
- Camera Link BASE interface (single channel).
- Progressive scan.
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [285HQE12_1392x1030x12bitCon1.DCF](#) (10.5 fps, no binning)
- DCF used: [285HQE12_1392x519x12bitCon2.DCF](#) (17.7 fps, Vertical 2x binning)*
- DCF used: [285HQE12_1392x259x12bitCon3.DCF](#) (26.7 fps, Vertical 4x binning)*

* Note: Horizontal binning mode DCFs are available on demand, contact Matrox Imaging Technical Support.



Mode 2: Asynchronous reset

- Up to $1392 \times 1040 \times 12\text{-bit}$.
- Camera Link BASE interface (single channel).
- 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.

Continued...

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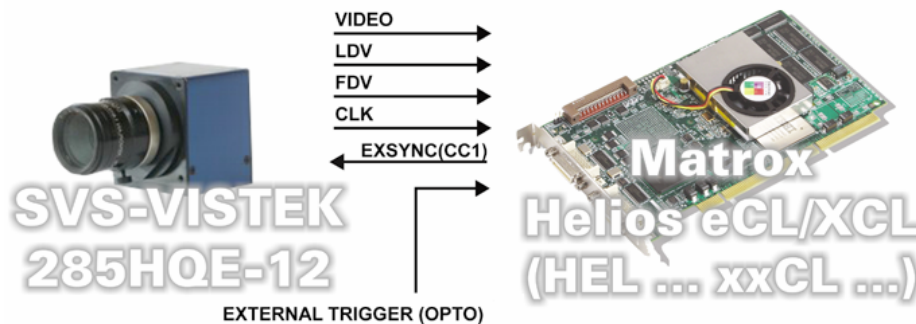
Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset

- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video signal from camera.
- DCF used: [285HQE12_1392x1040x12bitAsync1.DCF](#) (no binning)
- DCF used: [285HQE12_1392x519x12bitAsync2.DCF](#) (Vertical 2x binning)*
- DCF used: [285HQE12_1392x259x12bitAsync3.DCF](#) (Vertical 4x binning)*

* Note: Horizontal binning mode DCFs are available on demand, contact Matrox Imaging Technical Support.



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Helios eCL/XCL receives the continuous video from the camera at 10.5 frames per second (no binning). Vertical binning modes allow for 17.7 or 26.7 fps (Vertical 2x or 4x respectively).
- **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 control software settings:** Mode should be set to **Free Running**. Conventional Camera 2.0 software can be used to set the camera modes. Refer to manual for more 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 (rising edge to falling 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.

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Specifics about the
interface modes

Camera Interface Details

Mode 2: Asynchronous reset

- **Camera control software settings:** Mode should be set to **Triggered with External Exposure**. Conventional Camera 2.0 software can be used to set the camera modes. Refer to manual for more information.

Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous

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

Mode 2: Asynchronous reset (Pulse width control)

- **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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