

Matrox Helios eCL/XCL

Camera Interface Application Note

SVS-VISTEK SVS204CFCL

October 20, 2006

Basics about the
camera

Camera Descriptions

- Effective resolution: $1024 \times 768 \times 10\text{-bit}$ @ 42 fps.
- Camera Link BASE interface (single channel).
- Bayer Color Filter (Full resolution ONLY).
- Progressive scan.
- Internal sync.
- External or internal exposure control.
- 43 MHz pixel clock rate.

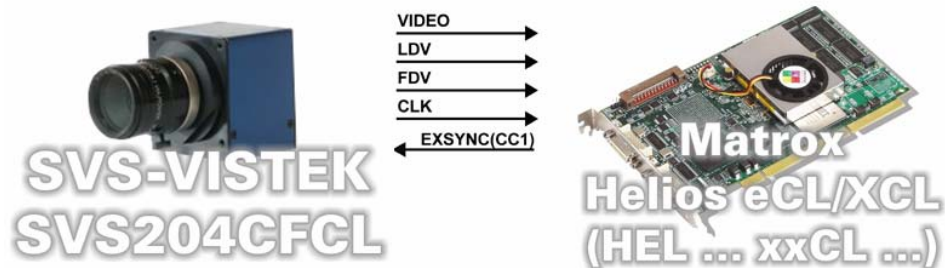
Interface Mode

- Continuous (FreeRun)
- Asynchronous reset (Triggered and External Exposure)

Camera Interface Briefs

Mode 1: Continuous

- $1024 \times 768 \times 10\text{-bit}$ @ 42 fps.
- $515 \times 383 \times 10\text{-bit}$ @ 77 fps.
- Camera Link BASE interface (single channel).
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video from camera.
- DCF used: [SVS204CFCL1024x768Con.DCF](#) (full resolution)
- DCF used: [SVS204CFCL512x383Con.DCF](#) (Binning X:2, Y:2)



Mode 2: Asynchronous reset

- $1024 \times 768 \times 10\text{-bit}$ (full resolution).
- $515 \times 383 \times 10\text{-bit}$ (Binning X:2, Y:2).
- Camera Link BASE interface (single channel).
- Matrox Helios eCL/XCL receiving external trigger signal.
- Matrox Helios eCL/XCL sending EXSYNC (CC1) signal to camera to initiate the exposure.
- Matrox Helios eCL/XCL receiving LDV, FDV, CLK and video from camera.

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

Basics about the
interface modes

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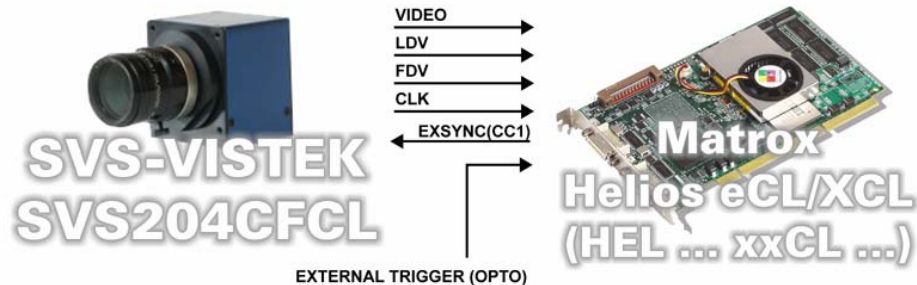
October 20, 2006

Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset

- DCF used: [SVS204CFCL1024x768Async.DCF](#) (Full resolution)
- DCF used: [SVS204CFCL512x383Async.DCF](#) (Binning X:2, Y:2)



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 42 frames per second (full resolution).
- **Exposure time:** Exposure time is determined by the Exposure Time Field setting in the VISTEK Convenient Camera utility (CONVCAM.EXE). Refer to the camera manual for more information.
- **Camera settings:** The camera mode is set to **Default** (FreeRun) for both DCFs. Binning mode (for [SVS204CFCL512x383Con.DCF](#) only) is set to **H2x V2x** using the VISTEK Convenient Camera utility (CONVCAM.EXE). Refer to the camera manual for more information.
- **Bayer Color Filter:** User will need to apply the Bayer color filter following image capture to the host. Color information is generated by this camera using a Bayer color mosaic filter mounted on the sensor. RGB information can only be obtained through software-based conversion. Following each frame capture it will be necessary to make a call to your MIL/MIL-Lite program in order to reconstruct the proper color image. This will require processing time by the host computer, which may reduce the effective acquisition rate. For more information, contact your local Sales representative or Matrox Imaging Technical Support.

Mode 2: Asynchronous Reset

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

Continued...

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Specifics about the
interface modes

Camera Interface Details (cont.)

Mode 2: Asynchronous Reset

- **Camera settings:** The camera mode is set to **Triggered and Extern Exposure** for both DCFs. Binning mode (for [SVS204CFCL512x383Async.DCF](#) only) is set to **H2x V2x** using the VISTEK Convenient Camera utility (CONVCAM.EXE). Refer to the camera manual for more information.
- **Bayer Color Filter:** Refer to Mode 1: Continuous.

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 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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