

Matrox Helios eA/XA

Camera Interface Application Note

JAI CV-A11

July 31, 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: $648 \times 492 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog video output.
- Progressive scan.
- External or internal sync.
- External or internal exposure control.
- 12.27 MHz pixel clock rate.

Interface Modes

- Continuous
- Asynchronous reset (Pulse width control)

Camera Interface Briefs

Mode 1: Continuous

- $648 \times 492 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Helios eA/XA receiving video from camera.
- DCF used: [CVA11_648x492Con.DCF](#)



VIDEO



Mode 2: Asynchronous Reset

- $648 \times 492 \times 8\text{-bit}$.
- Single channel analog video.
- Progressive scan.
- Matrox Helios eA/XA receiving external trigger signal.
- Matrox Helios eA/XA sending TIMER1 (TRIGGER INPUT) signal to camera to initiate and control the exposure.
- Matrox Helios eA/XA receiving video from camera.
- DCF used: [CVA11_648x492Async.DCF](#)

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Matrox Helios eA/XA

Camera Interface Application Note

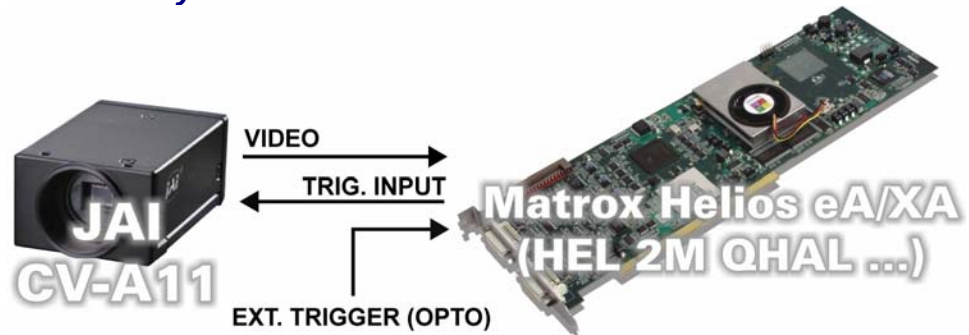
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Basics about the
interface modes

Camera Interface Briefs (continued)

Mode 2: Asynchronous Reset



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Helios eA/XA receives the continuous video from the camera at 30 frames per second.
- **Exposure time:** Exposure time is inversely proportionate to the frame rate.
- **Camera control:** Use default settings in the CV-A11 Camera Control Tool or if using Windows HyperTerminal, set the Camera Status request **ST=0** and Trigger Mode **TR=0**. Refer to the camera manual for more information about the Camera Control Tool or the RS-232C command list.

Mode 2: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** The time between the falling edge and the rising edge of the TIMER1 (TRIGGER INPUT) signal is the exposure time, which can be changed in the DCF by modifying Timer1 in Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera control:** **Trigger Mode** set to **Pulse Width Control** (Shutter and Sync Signals menu) in the CV-A11 Camera Control Tool or if using Windows HyperTerminal, set the Trigger mode **TR=2** and Trigger polarity **TP=0**. Refer to the camera manual for more information about the Camera Control Tool or the RS-232C command list.

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Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous

- **Cable and Connection:** DVI-TO-8BNC/O (open end) cable required for video signal. The connection between the 12-pin connector of the camera and the Matrox Helios eA/XA are as follow:

Matrox Helios eA/XA

(DVI analog input connector-0)

JAI CV-A11

(12-pin connector)

Pin name	Pin no.		Pin name	Pin no.
CH0_INPUTA	C1	←	VIDEO	04

Mode 2: Asynchronous reset

- **Cable and Connection:** DVI-TO-8BNC/O (open end) cable required for video signal. The connection between the 12-pin connector of the camera and the Matrox Helios eA/XA are as follow:

Matrox Helios eA/XA

(DVI analog input connector-0)

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(12-pin connector)

Pin name	Pin no.		Pin name	Pin no.
CH0_INPUTA	C1	←	VIDEO	04
CH0_EXPOSURE	23	→	TRIGGER INPUT	11

- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 2 and 7) on the external trigger input connector 1 (cable adapter board).

External trigger input

(9-pin connector)

External Trigger Source

OPTO TRIG+	07	←	SIGNAL	--
OPTO TRIG-	02	←	GROUND	--

The DCF(s) mentioned in this application note can be found on our FTP site (<ftp://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. © Matrox Electronic Systems Ltd., 2006-2011.

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