

Matrox Solios eA/XA

Camera Interface Application Note

SONY XC-HR90

December 8, 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: $1280 \times 960 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 49.3 MHz pixel clock rate.

Interface Modes

- Continuous
- Pseudo-continuous (Trigger Mode 2)
- Asynchronous reset (Trigger Mode 2)

Camera Interface Briefs

Mode 1: Continuous

- $1280 \times 960 \times 8\text{-bit}$ @ 30 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Solios eA/XA receiving video signal (with sync) from camera.
- DCF used: [XCHR90_1280x960_8bitCon.DCF](#)



VIDEO



Mode 2: Pseudo-continuous

- $1280 \times 960 \times 8\text{-bit}$.
- Single channel analog video.
- Progressive scan.
- Matrox Solios eA/XA receiving external trigger signal.
- Matrox Solios eA/XA sending EXPOSURE1 (TRIGGER PULSE INPUT) signal to camera to initiate and control exposure time.
- Matrox Solios eA/XA receiving video signal (with sync) from camera.
- DCF used: [XCHR90_1280x960_8bitPcon.DCF](#)

Continued...

Matrox Solios eA/XA

Camera Interface Application Note

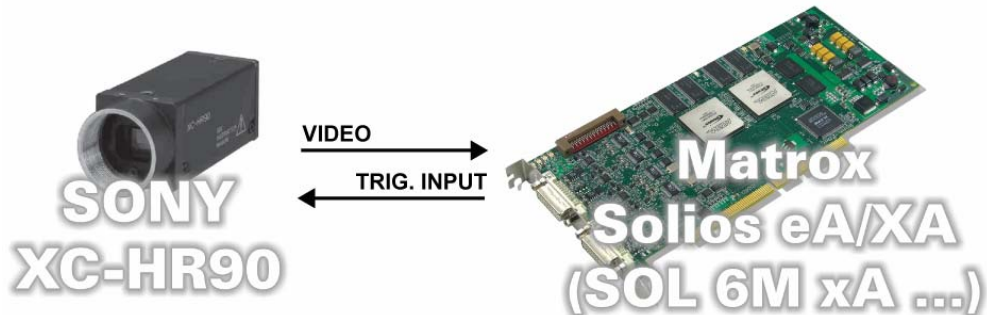
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Basics about the
interface modes

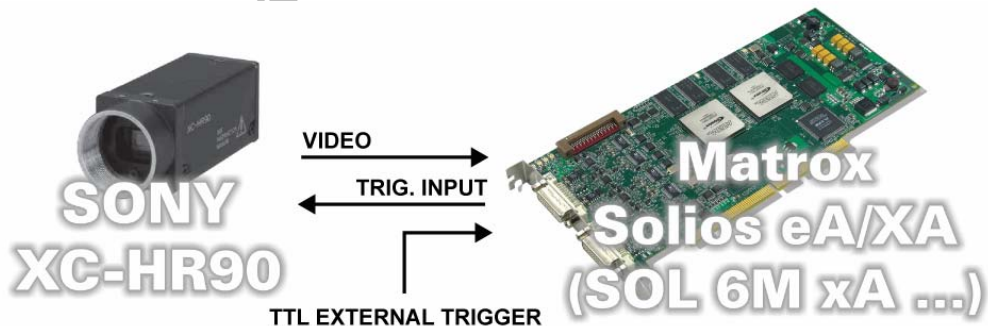
Camera Interface Briefs (Continued)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous Reset

- 1280 × 960 × 8-bit.
- Single channel analog video.
- Progressive scan.
- Matrox Solios eA/XA receiving external trigger signal.
- Matrox Solios eA/XA sending EXPOSURE1 (EXT. TRIGGER IN) signal to camera to initiate and control exposure time.
- Matrox Solios eA/XA receiving video signal (with sync) from camera.
- DCF used: [XCHR90_1280x960_8bitAsync.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Solios eA/XA receives the continuous video from the camera at 30 frames per second.
- **Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.

Continued...

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Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Camera settings:** Use serial communication or the SONY HR90Demo application to set the following camera settings:

Mode	Setting
SHUTTER	OFF
SCANMODE	NONE
TRIGGERMODE	OFF
SYNCHRONIZATION	INT
FRAMERATE	30FPS

Mode 2: Pseudo-continuous

- **Frame rate:** The frame rate is determined by the frequency of the EXPOSURE1 (TRIGGER PULSE INPUT) signal.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE1 (TRIGGER PULSE INPUT) signal equals the exposure time. The exposure time can be modified in the DCF using Matrox Intellicam or with the MIL digitizer control function **MdigControl()**. Refer to the appropriate manual or user guide for more information.
- **Camera Switch settings:** Use serial communication or the SONY HR90Demo application to set the following camera settings:

Mode	Setting
SHUTTER	TRIGGERWIDTH
SCANMODE	NONE
TRIGGERMODE	TRIGGERMODE2(RESET)
SYNCHRONIZATION	INT
FRAMERATE	30FPS

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Camera Interface Application Note

SONY XC-HR90

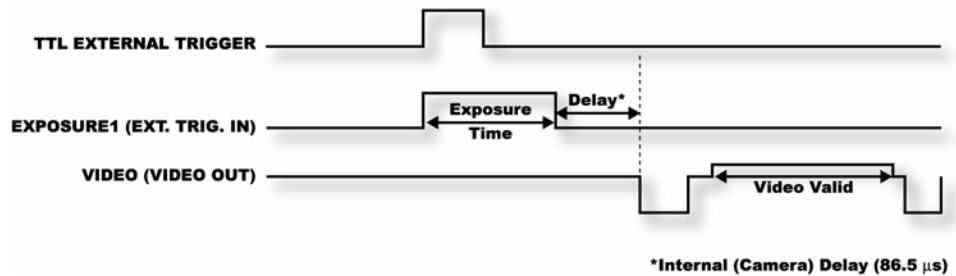
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Specifics about the
interface modes

Camera Interface Details (continued)

Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** Refer to Mode 2: Pseudo-continuous.
- **Camera Switch settings:** Refer to Mode 2: Pseudo-continuous.
- **Timing diagram:**



Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous

- **Cable and Connection:** DVI-TO-8BNC/O (open end) cable and DC-700 camera adaptor required for video signal. The connection between the 12-pin connector of the camera and the Matrox Solios eA/XA are as follow:

Matrox Solios eA/XA
(DVI analog input connector-0)

SONY XC-HR90
(DC-700 camera adaptor)

Pin name	Pin no.		Pin name	Pin no.
P0_VID_IN_A + gnd	C1	←	VIDEO OUTPUT	04

Mode 2: Pseudo-continuous

- **Cable and Connection:** DVI-TO-8BNC/O (open end) cable and DC-700 camera adaptor required for video signal. The connection between the 12-pin connector of the camera and the Matrox Solios eA/XA are as follow:

Matrox Solios eA/XA
(DVI analog input connector-0)

SONY XC-HR90
(DC-700 camera adaptor)

Pin name	Pin no.		Pin name	Pin no.
P0_VID_IN_A + gnd	C1	←	VIDEO OUTPUT	04
P0_TTL_AUX(EXP)_OUT + gnd	23	→	TRIG. PULSE INPUT	11

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Cabling details for the
interface modes

Cabling Requirements (cont.)

Mode 3: Asynchronous Reset

- **Cable and Connection:** DVI-TO-8BNC/O (open end) cable and DC-700 camera adaptor required for video signal. The connection between the 12-pin connector of the camera and the Matrox Solios eA/XA are as follow:

Matrox Solios eA/XA

(DVI analog input connector-0)

Pin name

Pin no.

P0_VID_IN_A + gnd

C1

P0_TTL_AUX(EXP)_OUT + gnd

23

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(12-pin connector)

Pin name

Pin no.

← VIDEO OUTPUT

04

→ TRIG. PULSE 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)

OPTO TRIG+

07

←

OPTO TRIG-

02

←

External Trigger Source

SIGNAL

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GROUND

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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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