

Matrox Solios eA/XA

Camera Interface Application Note

SONY XC-HR70

August 2, 2006

Basics about the
camera

Camera Descriptions

- Effective resolution: $1024 \times 768 \times 8\text{-bit}$ @ 30 or 60 fps.
- Single channel analog video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 29.5 MHz pixel clock rate.

Interface Modes

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

Camera Interface Briefs

Mode 1: Continuous

- $1024 \times 768 \times 8\text{-bit}$ @ 30 or 60 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Solios eA/XA receiving video signal (with sync) from camera.
- DCF used: [XCHR70_1024x768_8bitCon.DCF](#) (Non-binning, 30 fps)
- DCF used: [XCHR70_1024x370_8bitCon.DCF](#) (Binning, 60 fps)



VIDEO
HD INPUT
VD INPUT



Mode 2: Pseudo-continuous

- $1024 \times 768 \times 8\text{-bit}$.
- 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: [XCHR70_1024x768_8bitPcon.DCF](#) (Non-binning, 30 fps)
- DCF used: [XCHR70_1024x370_8bitPcon.DCF](#) (Binning, 60 fps)

Continued...

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

Basics about the
interface modes

Matrox Solios eA/XA

Camera Interface Application Note

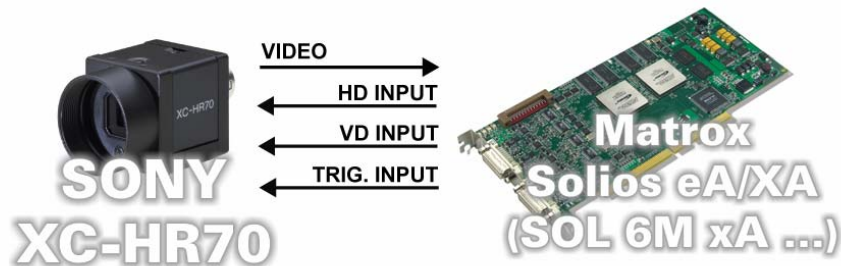
SONY XC-HR70

August 2, 2006

Basics about the
interface modes

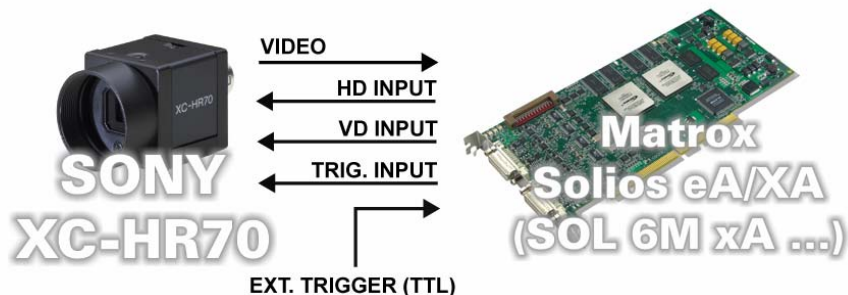
Camera Interface Briefs (Continued)

Mode 2: Pseudo-continuous



Mode 3: Asynchronous Reset

- 1024 × 768/354 × 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: [XCHR70_1024x768_8bitAsync.DCF](#) (Non-binning, 30 fps)
- DCF used: [XCHR70_1024x370_8bitAsync.DCF](#) (Binning, 60 fps)



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 30/60 frames per second (non-binning/binning respectively).
- **Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.

Continued...

Matrox Solios eA/XA

Camera Interface Application Note

SONY XC-HR70

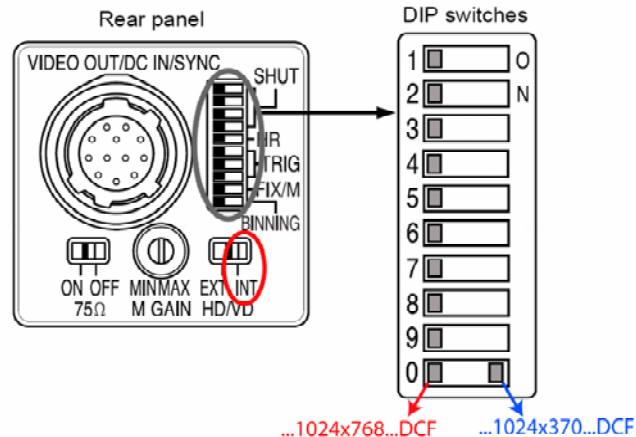
August 2, 2006

Specifics about the
interface modes

Camera Interface Details

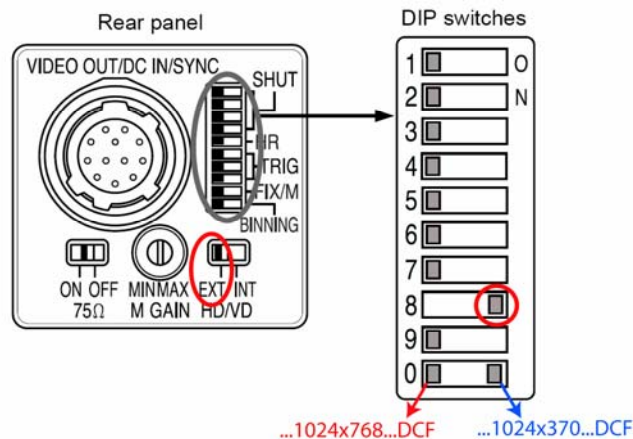
Mode 1: Continuous

- **Camera Switch settings:** Internal/External synchronization switch and DIP switches are set as follows, refer to the camera manual for additional information:



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:** Internal/External synchronization switch and DIP switches are set as follows, refer to the camera manual for additional information:



Matrox Solios eA/XA

Camera Interface Application Note

SONY XC-HR70

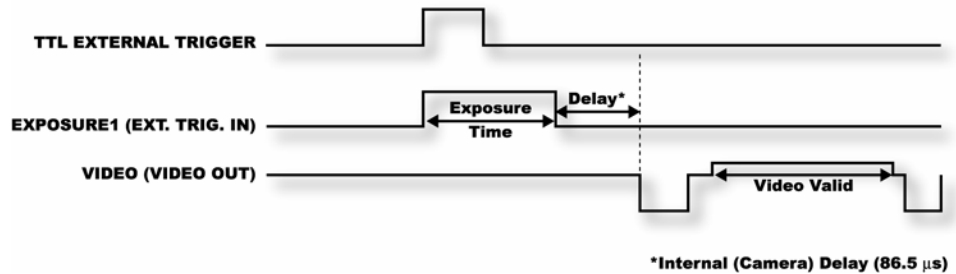
August 2, 2006

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 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-HR70

(12-pin connector)

Pin name	Pin no.		Pin name	Pin no.
CH0_INPUTA	C1	←	VIDEO OUTPUT	04
P0_LVDS/TTL_CHSYNC_IO+	13	←	HD INPUT	06
P0_LVDS/TTL_VSYNC_IO+	05	←	VD INPUT	07

Mode 2: Pseudo-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 Solios eA/XA are as follow:

Matrox Solios eA/XA

(DVI analog input connector-0)

SONY XC-HR70

(12-pin connector)

Pin name	Pin no.		Pin name	Pin no.
CH0_INPUTA	C1	←	VIDEO OUTPUT	04
P0_LVDS/TTL_CHSYNC_IO+	13	←	HD	06
P0_LVDS/TTL_VSYNC_IO+	05	←	VD	07
CH0_EXPOSURE	23	→	TRIG. PULSE INPUT	11

Matrox Solios eA/XA

Camera Interface Application Note

SONY XC-HR70

August 2, 2006

Cabling details for the
interface modes

Cabling Requirements (cont.)

Mode 3: 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 Solios eA/XA are as follow:

Matrox Solios eA/XA

(DVI analog input connector-0)

SONY XC-HR70

(12-pin connector)

Pin name	Pin no.		Pin name	Pin no.
CH0_INPUTA	C1	←	VIDEO OUTPUT	04
P0_LVDS/TTL_CHSYNC_IO+	13	←	HD INPUT	06
P0_LVDS/TTL_VSYNC_IO+	05	←	VD INPUT	07
CH0_EXPOSURE	23	→	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)

External Trigger Source

OPTO TRIG+	07	←	SIGNAL	--
OPTO TRIG-	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.

Matrox Electronic Systems Ltd.

1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel: (514) 685-2630
Fax: (514) 822-6273
SOL-CID-016

