

Matrox Corona-II

Camera Interface Application Note

SONY XC-HR70

December 6, 2007

Basics about the
camera

Camera Descriptions

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

NOTE: An updated version of the CORONA.INF info file is required for this camera. Please refer to the last page for more information!

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

Interface Modes

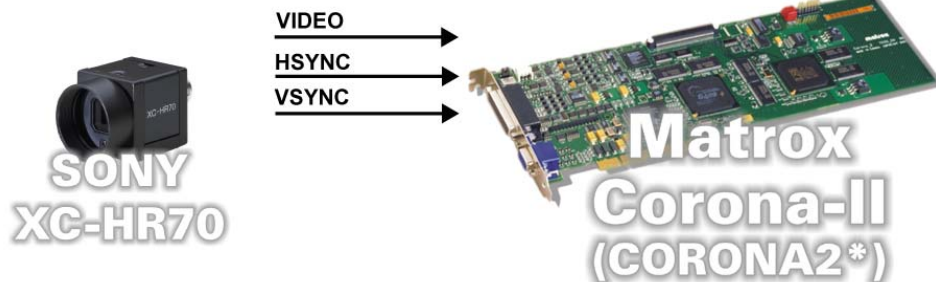
- Continuous
- Asynchronous reset (External Trigger Shutter Mode 2)
- Asynchronous reset (External Trigger Shutter Mode 2 - Software Trigger)

Basics about the
interface modes

Camera Interface Briefs

Mode 1: Continuous

- $1024 \times 768/354 \times 8\text{-bit}$ @ 30/60 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Corona-II receiving video with sync from camera.
- DCF used: [HR70_1024x768_8bitCon.DCF](#) (Non-binning @ 30 fps)
- DCF used: [HR70_1024x354_8bitCon.DCF](#) (Binning @ 60 fps)



Mode 2: Asynchronous Reset

- $1024 \times 768/354 \times 8\text{-bit}$.
- Single channel analog video.
- Progressive scan.
- Matrox Corona-II receiving external trigger signal.
- Matrox Corona-II sending EXPOSURE1 (EXT. TRIGGER IN) signal to camera to initiate and control exposure time.
- Matrox Corona-II receiving video with sync from camera.
- DCF used: [HR70_1024x768_8bitAsync.DCF](#) (Non-binning)
- DCF used: [HR70_1024x354_8bitAsync.DCF](#) (Binning)

Continued...

Matrox Corona-II

Camera Interface Application Note

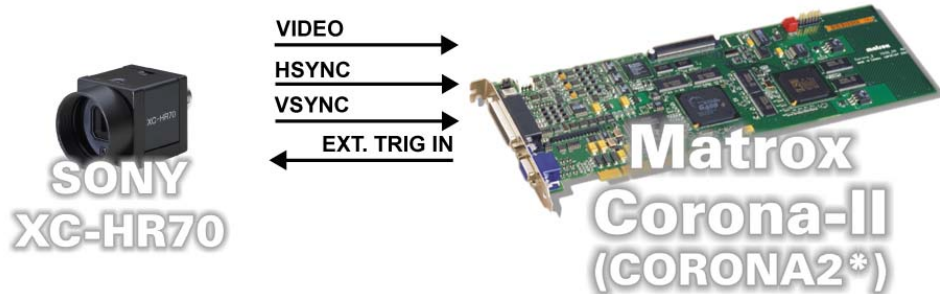
SONY XC-HR70

December 6, 2007

Basics about the
interface modes

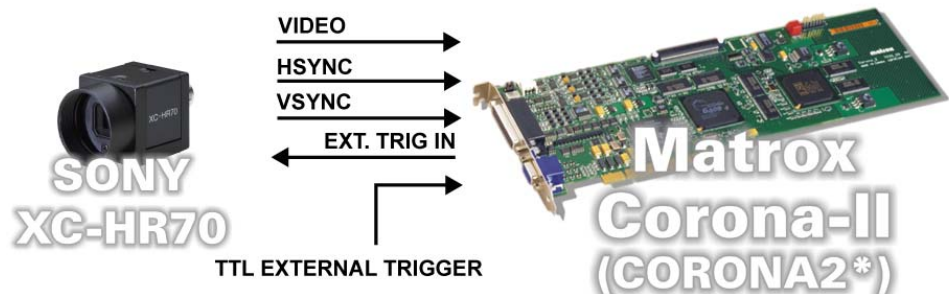
Camera Interface Briefs (Continued)

Mode 2: Asynchronous Reset



Mode 3: Asynchronous Reset (software trigger)

- 1024 × 768 × 8-bit.
- Single channel analog video.
- Progressive scan.
- Matrox Corona-II receiving software trigger signal.
- Matrox Corona-II sending EXPOSURE1 (EXT. TRIGGER IN) signal to camera to initiate and control exposure time.
- Matrox Corona-II receiving video with sync from camera.
- DCF used: [HR70_1024x768_8bitAsyncSWTrig.DCF](#) (Non-binning)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Corona-II 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 Corona-II

Camera Interface Application Note

SONY XC-HR70

December 6, 2007

*Specifics about the
interface modes*

Camera Interface Details (cont.)

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:

	EXT	INT
Internal/External Sync		•
	OFF	ON
Shutter Speed 1	•	
Shutter Speed 2	•	
Shutter Speed 3	•	
Shutter Speed 4	•	
HR 5	•	
Trigger 6	•	
Trigger 7	•	
Trigger 8	•	
Fix/M 9	•	
Binning 0	*	*

* Binning = ON/Non-Binning = OFF

Mode 2: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The period between the external trigger signals must be larger than the frame readout period plus the exposure time.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE1 (EXT. TRIGGER IN) 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.

Continued...

Matrox Corona-II

Camera Interface Application Note

SONY XC-HR70

December 6, 2007

Specifics about the
interface modes

Camera Interface Details (cont.)

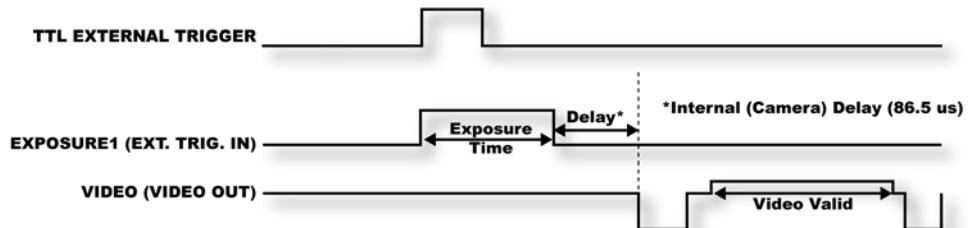
Mode 2: Asynchronous Reset

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

	EXT	INT
Internal/External Sync		•
	OFF	ON
Shutter Speed 1	•	
Shutter Speed 2	•	
Shutter Speed 3	•	
Shutter Speed 4	•	
HR 5	•	
Trigger 6	•	
Trigger 7	•	
Trigger 8		•
Fix/M 9	•	
Binning 0	*	*

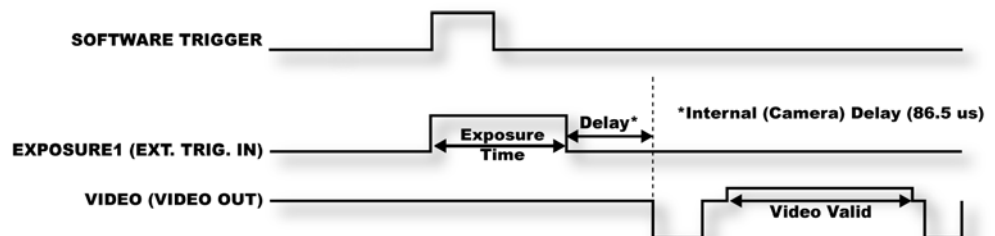
* Binning = ON/Non-Binning = OFF

- **Timing diagram:**



Mode 3: Asynchronous Reset (software trigger)

- **Frame rate:** The frame rate is determined by the frequency of the software generated trigger signal. The period between the software-generated trigger signals must be larger than the frame readout period plus the exposure time.
- **Exposure time:** Same as Mode 2: Asynchronous Reset.
- **Camera Switch settings:** Same as Mode 2: Asynchronous Reset.
- **Timing diagram**



Matrox Corona-II

Camera Interface Application Note

SONY XC-HR70

December 6, 2007

Cabling details for this
interface mode

Cabling Requirements

Mode 1: Continuous

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin connectors of the Matrox Corona-II are as follows:

METEOR2-MC/4 (44-pin connector)			SONY XC-HR70 (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN	15	←	VIDEO OUT	04
GROUND	17	--	GROUND	03
HSYNC_TTL	02	←	HSYNC	06
VSYNC_TTL	32	←	VSYNC	07

- **Power supply:** connections are as follows:

POWER SUPPLY			SONY XC-HR70 (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
12 V DC	--	--	+ 12 V	02
GROUND	--	--	GROUND	01

Mode 2: Asynchronous Reset

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **External trigger:** external trigger signal connected to the OptoCoupled Trigger input (pin 34, 35) of the DBHD44-TO-8BNC/O cable.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin connectors of the Matrox Corona-II are as follows:

METEOR2-MC/4 (44-pin connector)			SONY XC-HR70 (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN	15	←	VIDEO OUT	04
EXPOSURE1	38	→	EXT. TRIGGER IN	11
GROUND	17	--	GROUND	03
HSYNC_TTL	02	←	HSYNC	06
VSYNC_TTL	32	←	VSYNC	07

EXTERNAL TRIGGER SOURCE			
OPTOTRIG +	35	←	SIGNAL --
OPTOTRIG -	34	←	GND --

- **Power supply:** connections are as *Mode 1: Continuous*.

Matrox Corona-II

Camera Interface Application Note

SONY XC-HR70

December 6, 2007

Cabling details for this
interface mode

Cabling Requirements (cont.)

Mode 3: Asynchronous Reset (software trigger)

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin connectors of the Matrox Corona-II are as follows:

METEOR2-MC/4 (44-pin connector)			SONY XC-HR70 (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN	15	←	VIDEO OUT	04
EXPOSURE1	38	→	EXT. TRIGGER IN	11
GROUND	17	--	GROUND	03
HSYNC_TTL	02	←	HSYNC	06
VSYNC_TTL	32	←	VSYNC	07

- **Power supply:** connections are as *Mode 1: Continuous*.

Special Requirements

All Modes

Info File Replacement: An updated version of the CORONA.INF info file is required for this camera. Please refer to the README.TXT file for details on how to replace this file.

[MIL 8.x version](#)

[MIL 7.x version](#)

NOTE: Adobe Reader 7.x (and higher) users can find all the necessary files embedded within this PDF (look for "Attachment" tool) but will need to rename the INF extension of the attached version from "._INF" to ".INF".

Special requirements
details for this interface

The DCF(s) mentioned in this application note can be found on our FTP site ([ftp.matrox.com/pub/imaging/](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.

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

COR2-CID-009

