Matrox Corona-II

Camera Interface Application Note

SONY XC-HR50 April 17, 2002

Basics about the camera

Camera Descriptions

- Effective resolution: 640 × 495 × 8-bit @ 60/120 fps.
- Single channel analog video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 24.54 MHz pixel clock rate.

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

Interface Modes

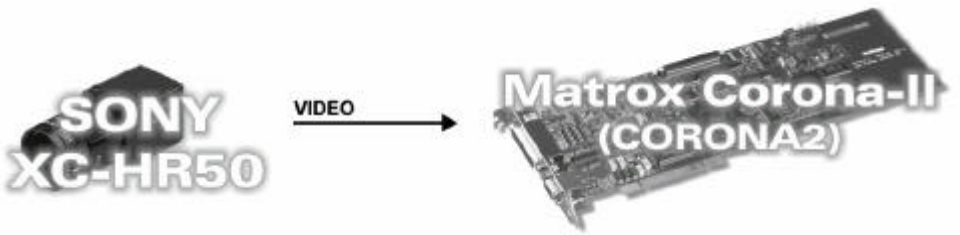
- Continuous (binning, non-binning)
- Asynchronous reset (External Trigger Shutter Mode 2)

Basics about the interface modes

Camera Interface Briefs

Mode 1: Continuous

- 640 × 495/240 × 8-bit @ 60/120 fps.
- Single channel analog video.
- Progressive scan.
- Matrox Corona-II receiving video signal (with sync) from camera.
- DCF used: HR50C.DCF (Non-binning, 640 × 495 @ 60 FPS)
- DCF used: HR50CB1.DCF (Binning, 640 × 240 @ 120 FPS)



Mode 2: Asynchronous Reset (Ext. Trigger Shutter Mode 2)

- 640 × 495/240 × 8-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 signal from camera.
- DCF used: HR50A.DCF (Non-binning, 640 × 495)
- DCF used: HR50AB1.DCF (Binning, 640 × 240)

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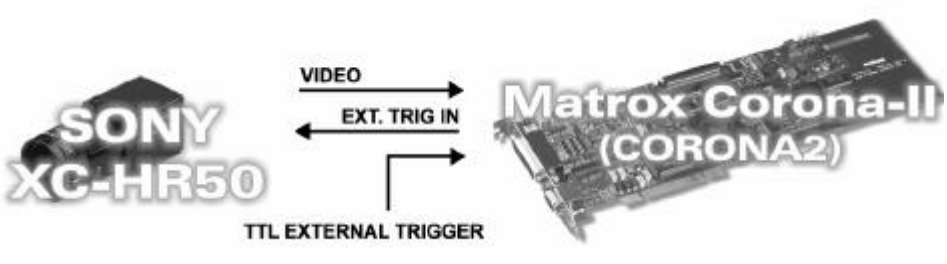
Basics about the interface modes

Camera Interface Briefs (Continued)

Mode 2: Asynchronous Reset (Ext. Trigger Shutter Mode 2)



Specifics about the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Corona-II receives the continuous video from the camera at 60/120 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.
- **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 (Ext. Trigger Shutter Mode 2)

- **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 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.

Specifics about the interface modes

Camera Interface Details (continued)

Mode 2: Asynchronous Reset (Ext. Trigger Shutter Mode 2)

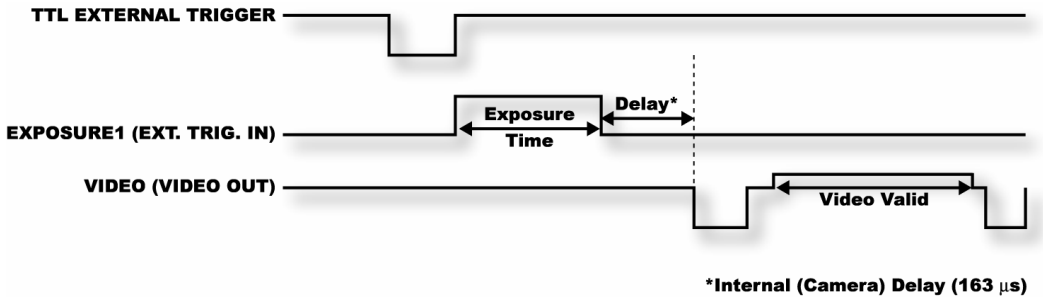
- **Camera Switch settings:** Internal/External synchronization switch and DIP switches are set as follows, refer to the camera manual for additional information:

	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**:



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:

CORONA2 (44-pin connector)			**SONY XC-HR50 (12-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
VID1_IN	15	←	VIDEO OUT	04
GROUND	17	--	GROUND	03

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Cabling Requirements (continued)

Mode 2: Asynchronous Reset (Ext. Trigger Shutter Mode 2)

- **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:

CORONA2 (44-pin connector)			**SONY XC-HR50 (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
			EXTERNAL TRIGGER SOURCE	
OPTOTRIG +	34	←	--	--
OPTOTRIG -	35	←	--	--

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

POWER SUPPLY			**SONY XC-HR50 (12-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
12 V DC	--	--	+ 12 V	02
GROUND	--	--	GROUND	01

The DCF(s) mentioned in this application note can be found on the MIL CD or our FTP site (ftp.matrox.com). 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.

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