Matrox Genesis

Camera Interface Application Note

JAI CV-A50

March 28, 2002

Basics about the camera

Camera Descriptions

- Effective resolution: 752 × 484 @ 30/60 fps.
- Single tap analog video output.
- Interlaced and progressive scan.
- Full or partial scan.
- Internal or external sync.
- Internal or external exposure control.
- 14.318 MHz pixel clock rate.

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

Interface Mode

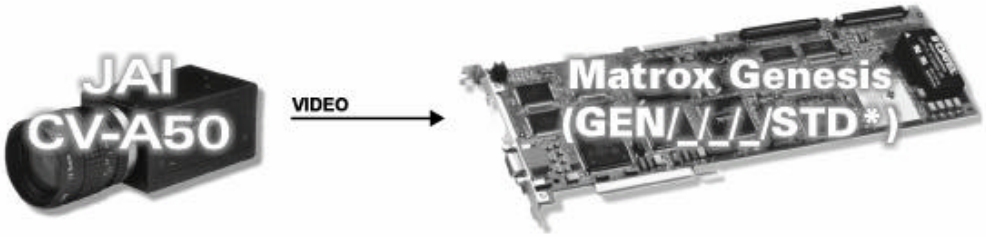
- Continuous
- Asynchronous reset (pulse width control trigger mode)

Basics about the interface mode

Camera Interface Briefs

Mode 1: Continuous

- 752 × 484 @ 30 fps (Interlace scan).
- 752 × 242 @ 60 fps (Progressive scan).
- Single tap analog video.
- Interlace and progressive scan.
- Matrox Genesis receiving video signal (composite sync) from camera.
- DCF used: GCVA50CI.DCF (Interlace scan)
- DCF used: GCVA50CN.DCF (Progressive scan)



Mode 2: Asynchronous Reset (pulse width control trig. mode)

- 752 × 242.
- Single tap analog video.
- Progressive scan.
- Matrox Genesis receiving external trigger signal.
- Matrox Genesis sending EXPOSURE1 (EXT. TRIG IN) signal to camera to initiate and control exposure time.
- Matrox Genesis receiving video and sync from camera.
- DCF used: GCVA50AN.DCF

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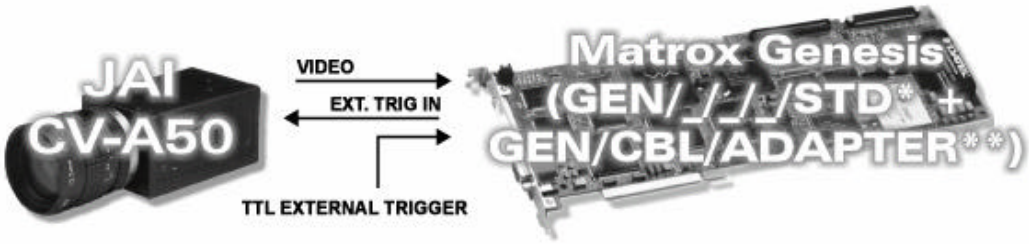
Basics about the interface mode

Camera Interface Briefs (cont.)

Mode 2: Asynchronous Reset (pulse width control trig. mode)



Specifics about the interface mode

Camera Interface Details

Mode 1: Continuous

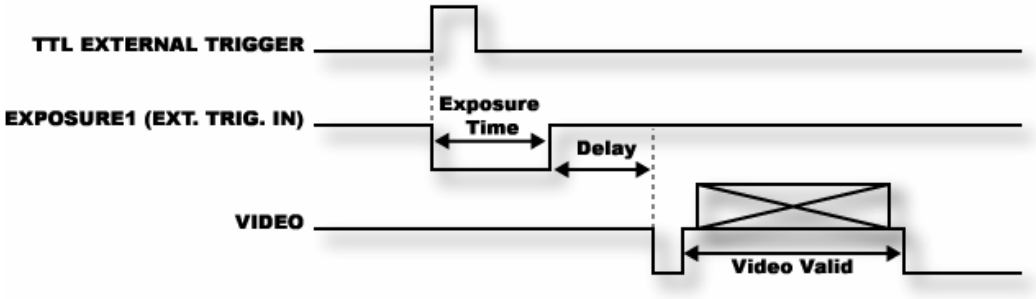
- **Frame Rate:** Matrox Genesis receives the continuous video from the camera at 30 frames per second.
- **Exposure time:** Exposure time can be modified through the camera configuration software. Refer to the camera manual for more information.

Mode 2: Asynchronous Reset (pulse width control trig. mode

- **Frame rate**: The frame rate is determined by the frequency of the external trigger signal and the period of the exposure time.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (EXT. TRIG IN) signal equals the exposure time. An internal camera delay of **127 ms** is present before the video valid. The exposure time can be modified in the DCF using Matrox Intellicam, Genesis Native Library (GNL) imCamControl() or with the MIL digitizer control function **MdigControl()**. Refer to the appropriate manual or user guide for more information.
- **Camera switch settings:** Refer to the camera manual for additional information. Internal switches for this mode should be set as follows:

Switches	Settings
SW1-1 (Internal HD)	ON
SW1-2 (Internal VD)	ON
SW2-1 (75Ω Termination)	ON
SW2-2 (75Ω Termination)	ON

- **Timing diagram:**



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Cabling details for this interface mode

Cabling Requirements

Mode 1: Continuous

- **Cable:** IMG-7W2-TO-5BNC cable required for video (composite sync) signals.
- **Connection:** Connection between the 12-pin connector of the camera and the BNC connector of the Matrox Genesis are as follows:

Matrox Genesis (BNC connector)			**JAI CV-A50 (12-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
RED BNC	--	←	VIDEO OUT	04
RED BNC (GND)	--	←	GROUND	03

Mode 2: Asynchronous Reset (pulse width control trig. mode)

- **Cable:** IMG-7W2-TO-5BNC and DBHD68-TO-OPEN (open ended) cables required for video, synchronization and control signals.
- **External trigger:** TTL external trigger should be connected to the TTL trigger input of the IMG-7W2-TO-5BNC cable (gray BNC).
- **Connection:** Connections between the 12-pin connector of the camera and the BNC/68-pin connectors of the Matrox Genesis are as follows:

Matrox Genesis (BNC connector)			**JAI CV-A50 (12-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
RED BNC	--	←	VIDEO OUT	04
RED BNC (GND)	--	←	GROUND	03
Cable Adapter Board (68-pin connector)			**JAI CV-A50 (12-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
EXPOSURE1, OUTPUT, TTL	24	→	EXT. TRIG IN	11
GROUND	25	--	GROUND	03

Matrox Genesis (BNC connector)			**TTL External Trigger Source**	
Pin name	***Pin no.***			
GRAY BNC	--	←	SIGNAL	--

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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