

Matrox Genesis

Camera Interface Application Note

JAI CV-A1

March 3, 2003

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: 1376×1035 @ 16 fps.
- Analog video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 28.63636 MHz pixel clock rate.

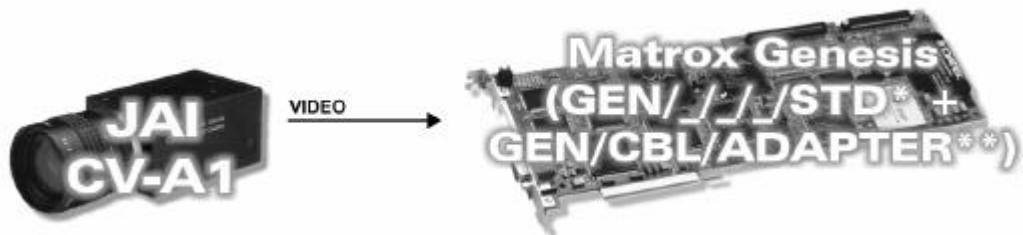
Interface Modes

- Continuous
- Asynchronous reset (Pulse Width Control Mode)

Camera Interface Briefs

Mode 1: Continuous

- 1376×1035 @ 16 fps.
- Analog video.
- Progressive scan.
- Matrox Genesis receiving video signal from camera.
- DCF used: [GCVA1C.DCF](#)



Mode 2: Asynchronous Reset (Pulse Width Control Mode)

- 1376×1035 .
- Analog video.
- Progressive scan.
- Matrox Genesis receiving external trigger signal.
- Matrox Genesis sending EXPOSURE2 (EXT. TRIGGER INPUT) signal to camera to initiate and control exposure time.
- Matrox Genesis receiving video signal from camera.

Continued...

* Matrox Genesis main board with grab module
** Matrox digital cable adapter board (not required)

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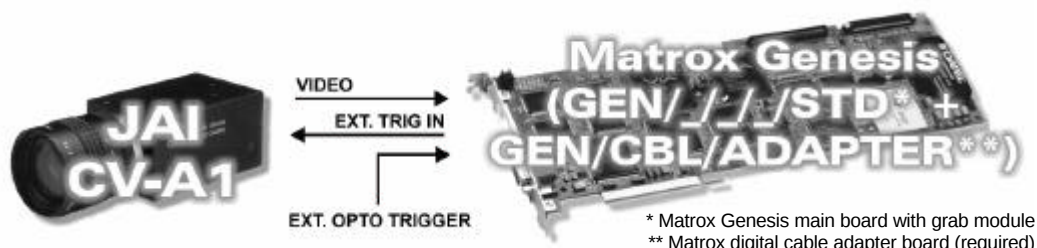
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Basics about the
interface modes

Camera Interface Briefs

Mode 2: Asynchronous Reset (Pulse Width Control Mode)

- DCF used: [GCVA1A.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Genesis receives the continuous video from the camera at 16 frames per second.
- **Exposure time:** Exposure time is inversely proportionate to the frame rate (no shutter) or determined by the shutter setting. Refer to the camera manual for more information.
- **Camera configuration:** Camera configuration is performed via JAI's camera control tool. Refer to the camera manual for additional information. Settings for this mode are as follows:

Mode	Setting
Shutter	Normal
Trigger	Normal
Sync signal output	ON

Mode 2: Asynchronous Reset (Pulse Width Control Mode)

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The maximum possible frame rate is dependent on the exposure time as well as the frame readout period.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE2 (EXT. TRIGGER INPUT) signal is the exposure time. The exposure time can be modified in the DCF using Matrox Intellicam, Genesis Native Library (GNL) `imCamControl()` or the MIL `MdigControl()` function. Consult the respective manual for more information.

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Specifics about the
interface modes

Camera Interface Details (continued)

Mode 2: Asynchronous Reset (Pulse Width Control Mode)

- **Camera configuration:** Camera configuration is performed via JAI's camera control tool. Refer to the camera manual for additional information. Settings for this mode are as follows:

Mode	Setting
Shutter	Normal
Trigger	Pulse width control
Sync signal output	ON

Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous

- **Cable:** IMG-7W2-TO-5BNC cable required for video, synchronization and control signals
- **Connection:** Connections between the 12-pin connector (DC-IN/VIDEO OUT, EXT.HD/VD IN) of the camera and the Matrox Genesis are as follows:

JAI CV-A1 (12-pin connector)		Matrox Genesis (7-pin connector)	
Pin name	Pin no.	Pin name	Pin no.
VIDEO OUTPUT	04	→ Analog Video Input 1 (RED)	A1

Mode 2: Asynchronous Reset (Pulse Width Control Mode)

- **Cable:** IMG-7W2-TO-5BNC cable required for video, synchronization and control signals.
- **Connection:** Connections between the 12-pin connector (DC-IN/VIDEO OUT, EXT.HD/VD IN) of the camera and the Matrox Genesis are as follows:

JAI CV-A1 (12-pin connector)		MATROX GENESIS (7-pin connector)	
Pin name	Pin no.	Pin name	Pin no.
VIDEO OUTPUT	04	→ Analog Video Input 1 (RED)	A1
EXT. TRIGGER	11	← EXPOSURE2, OUTPUT, TTL	58

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*Cabling details for the
interface modes*

Cabling Requirements (continued)

Mode 2: Asynchronous Reset (Pulse Width Control Mode)

- **Connection:** Connections between the H/W trigger source and the Matrox Genesis are as follows:

H/W Trigger Source			MATROX GENESIS (7-pin connector)	
<i>Pin name</i>	<i>Pin no.</i>		<i>Pin name</i>	<i>Pin no.</i>
H/W TRIG Cable	--	→	OPTOTRIG +	35
GND	--	→	OPTOTRIG -	34

The DCF(s) mentioned in this application note can be found on the MIL CD or our FTP site ([ftp.matrox.com](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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GEN-CID-125

