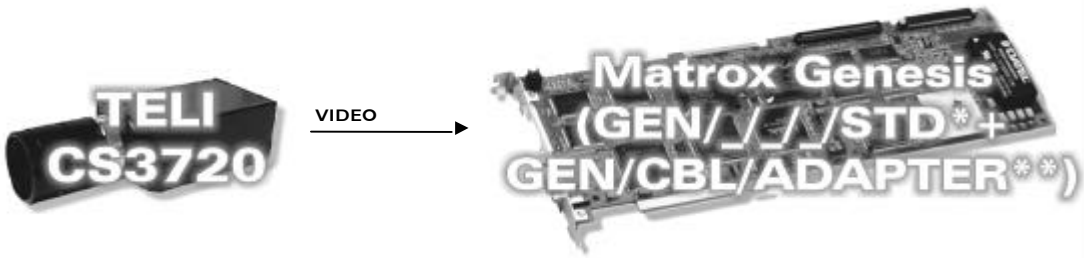
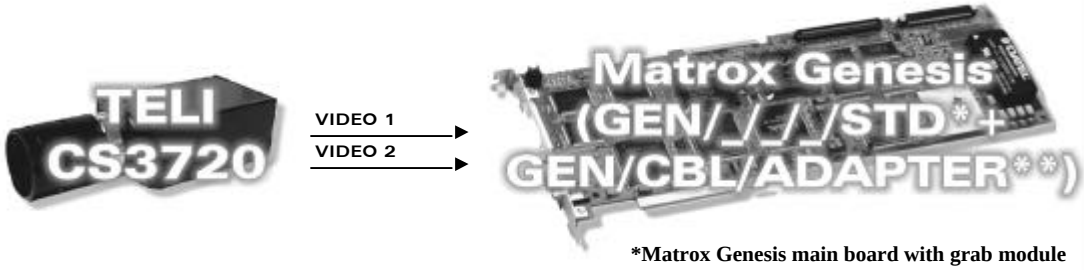
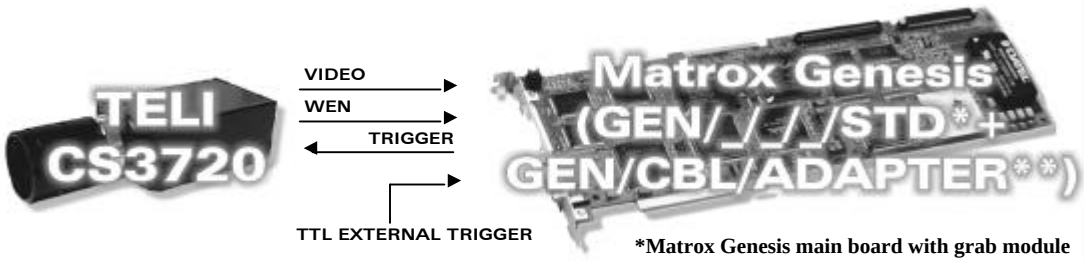
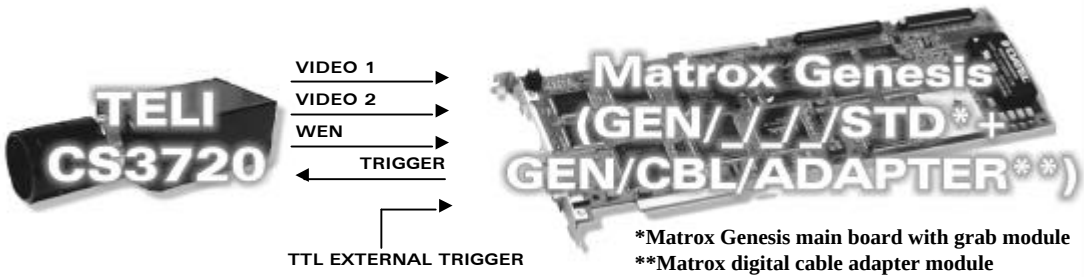
Application Note:
Interfacing non-standard cameras to Matrox Genesis

MATROX GENESIS

TELI CS3720

February 14, 2000

Camera Descriptions	• 658 x 494 x 8-bit. • Single or dual channel analog video output. • Interlaced or progressive scan. • Internal (composite) or external synchronization. • Internal or external exposure control. • Pixel clock: 24.54 MHz
Interface mode	• Continuous, asynchronous reset (I and N modes)
Camera Interface Briefs	**Mode 1: Continuous (Genesis Slave - I mode)**  ***Matrox Genesis main board with grab module** ****Matrox digital cable adapter module** • 648 x 492 x 8-bit @ 60 fps. • Single channel analog video. • Interlaced scan. • Continuous video. • Matrox Genesis receiving video signal from camera. • DCF used: GCS372C1.DCF **Mode 2: Continuous (Genesis Slave - N mode)**  ***Matrox Genesis main board with grab module** ****Matrox digital cable adapter module** • 648 x 480 x 8-bit @ 120 fps. • Dual channel analog video. • Progressive scan. • Continuous video. • Matrox Genesis receiving video signal from camera. • DCF used: GCS372C2.DCF

Camera Interface Briefs (continued)	**Mode 3 : Asynchronous Reset (I mode)**  ***Matrox Genesis main board with grab module** ****Matrox digital cable adapter module** • 648 x 492 x 8-bit. • Single channel analog video. • Interlaced scan. • Matrox Genesis receiving TTL external trigger. • Matrox Genesis sending EXPOSURE2 (TRIGGER) signal to camera; the EXPOSURE2 (TRIGGER) signal initiate exposure. • Matrox Genesis receiving TRIGGER INPUT (WEN) and video signals from camera. • DCF used: GCS372AI.DCF **Mode 4 : Asynchronous Reset (N mode)**  ***Matrox Genesis main board with grab module** ****Matrox digital cable adapter module** • 648 x 480 8-bit. • Dual channel analog video. • Progressive scan. • Matrox Genesis receiving TTL external trigger. • Matrox Genesis sending EXPOSURE2 (TRIGGER) signal to camera; the EXPOSURE2 (TRIGGER) signal initiate exposure. • Matrox Genesis receiving TRIGGER INPUT (WEN) and video signals from camera. • DCF used: GCS372AN.DCF
Camera Interface Details	**Modes 1 and 2: Continuous (I mode & N mode)** • **Frame rate**: Matrox Genesis receives the continuous video from the camera with a frame rate of 60/120 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 switch settings:** Use default switch settings.

Camera Interface Details (continued)	**Mode 3 and 4: Asynchronous Reset (I mode & N mode)** • Once it has received the external trigger signal, Matrox Genesis sends the EXPOSURE2 (TRIGGER) signal to the camera to initiates and controls the exposure period. • **Frame rate**: The frame rate is determined by the frequency of the external trigger signal. • **Exposure time**: Exposure time is dependent on the shutter switch setting as well as the width of the EXPOSURE2 (TRIGGER) signal (active and inactive periods). T3 = [(shutter switch setting) – EXPOSURE2 width + 1.2 ms)]. The default exposure time for this DCF is equal to **1 ms**. In order to change the width and deployment time of EXPOSURE2 (TRIGGER) use the Exposure Settings menu tab in Matrox Intellicam. Consult the Matrox Intellicam User Guide for more information. • **Camera switch settings:** Use default switch settings.
Cabling Requirements	**Mode 1: Continuous (Genesis Slave - I mode)** • Digital Cable Adapter board and IMG-7W2-TO-5BNC cable required for video output of camera. • Video input of IMG-7W2-TO-5BNC cable should be connected to video out BNC connector of camera: Video Output 1 → Red Cable **Mode 2: Continuous (Genesis Slave - N mode)** • Digital Cable Adapter board and IMG-7W2-TO-5BNC cable required for video output of camera. • Video input of IMG-7W2-TO-5BNC cable should be connected to video out BNC connector of camera: Video Output 1 → Green Cable Video Output 2 → Red Cable **Mode 3: Asynchronous Reset (I mode)** • Digital Cable Adapter board and IMG-7W2-TO-5BNC cable required for video output of camera. • TTL external trigger source should be connected to TRIGGER INPUT of the IMG-7W2-TO-5BNC cable. continued

Cabling Requirements (continued)

Mode 3: Asynchronous Reset (I mode)

- Video input of IMG-7W2-TO-5BNC cable should be connected to video out BNC connector of camera:

  Video Output 1 → Red Cable

- The following connections should be made between the 12-pin connector of the camera and Matrox Genesis are as follows:

DIGITAL CABLE ADAPTER BOARD (68-pin connector)			**TELI CS3720 (12-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
EXPOSURE2, OUTPUT, TTL	58	→	EXT. TRIGGER INPUT	11
GROUND	25	--	GROUND	03
TRIGGER, INPUT, TTL	67	←	WEN	10

Mode 4: Asynchronous Reset (N mode)

- Digital Cable Adapter board and IMG-7W2-TO-5BNC cable required for video output of camera.
- TTL external trigger source should be connected to TRIGGER INPUT of the IMG-7W2-TO-5BNC cable.
- Video input of IMG-7W2-TO-5BNC cable should be connected to video out BNC connector of camera:

  Video Output 1 → Green Cable

  Video Output 2 → Red Cable

- All other connections are as in *Mode 3 Asynchronous Reset (I mode).*

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