MATROX GENESIS
CAMERA INTERFACE APPLICATION NOTE
JAI CV-M4 JUNE 22, 2001

Basics about the camera

Camera Descriptions

- 1300 × 1030 × 8-bit @ 24 fps.
- Single channel LVDS digital video output.
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 40.49 MHz pixel clock rate.

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

Interface Modes

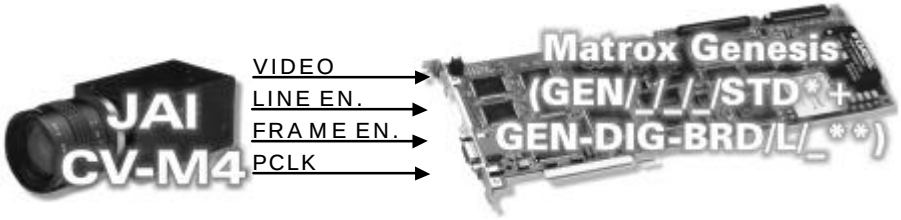
- Continuous (Full, partial scan)

Basics about the interface modes

Camera Interface Briefs

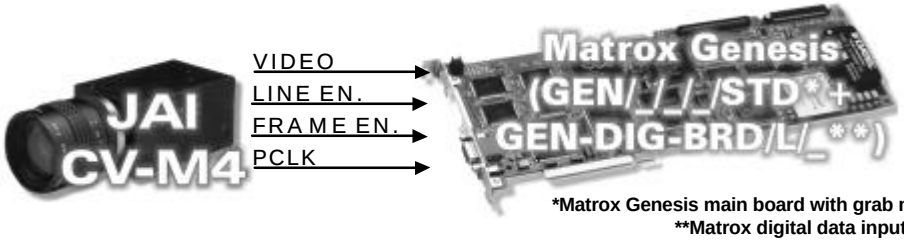
Mode 1: Continuous (Full)

- 1272 × 1024 × 8-bit @ 24 fps.
- Single channel LVDS digital video.
- Progressive scan.
- Matrox Genesis receiving HSYNC (LINE ENABLE), VSYNC (FRAME ENABLE), PIXEL CLOCK (PCLK) and video from camera.
- DCF used: M2CVM4C1.DCF



Mode 2: Continuous (Partial scan)

- 1272 × up to 512 × 8-bit.
- Single channel LVDS digital video.
- Progressive scan.
- Matrox Genesis receiving HSYNC (LINE ENABLE), VSYNC (FRAME ENABLE), PIXEL CLOCK (PCLK) and video from camera.
- DCF used: M2CVM4C2.DCF (Partial 1/2,1272 × 514 @ 44 fps)
- DCF used: M2CVM4C4.DCF (Partial 1/4, 1272 × 250 @ 79 fps)
- DCF used: M2CVM4C8.DCF (Partial 1/8, 1272 × 130 @ 120 fps)



***Matrox Genesis main board with grab module**
****Matrox digital data input board**

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Specifics about the interface modes

Camera Interface Details

Mode 1 and 2: Continuous

- **Frame Rate:** Matrox Genesis receives the continuous video from the camera at up to 24/120 frames per second (full/partial scan mode).
- **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:** Refer to the camera manual for additional information.

Cabling details for the interface modes

Cabling Requirements

Mode 1: Continuous

- **Cable:** DBHD100-TO-OPEN (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 26-pin MDR connector of the camera and the 100-pin connector of the Matrox Genesis are as follows:

GEN-DIG-BRD//L/_ (100-pin connector)			**JAI CV-M4 (26-pin MDR connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
DATA, INPUT, 0 +	01	←	+D0 OUT	01
DATA, INPUT, 1 +	03	←	+D1 OUT	02
DATA, INPUT, 2 +	05	←	+D2 OUT	03
DATA, INPUT, 3 +	07	←	+D3 OUT	04
DATA, INPUT, 4 +	09	←	+D4 OUT	05
DATA, INPUT, 5 +	11	←	+D5 OUT	06
DATA, INPUT, 6 +	13	←	+D6 OUT	07
DATA, INPUT, 7 +	15	←	+D7 OUT	08
HSYNC, INPUT, +	33	←	+LEN OUT	11
VSYNC, INPUT, +	35	←	+FEN OUT	12
CLOCK, INPUT, +	39	←	+PCLK OUT	13
DATA, INPUT, 0 -	02	←	+D0 OUT	14
DATA, INPUT, 1 -	04	←	+D1 OUT	15
DATA, INPUT, 2 -	06	←	+D2 OUT	16
DATA, INPUT, 3 -	08	←	+D3 OUT	17
DATA, INPUT, 4 -	10	←	+D4 OUT	18
DATA, INPUT, 5 -	12	←	+D5 OUT	19
DATA, INPUT, 6 -	14	←	+D6 OUT	20
DATA, INPUT, 7 -	16	←	+D7 OUT	21

Continued…

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Cabling details for the interface modes

Cabling Requirements (continued)

Mode 1: Continuous

METEOR2-DIG/4/L (100-pin connector)			JAI CV-M4 (26-pin MDR connector)	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
HSYNC, INPUT, -	34	←	- LEN OUT	24
VSYNC, INPUT, -	36	←	- FEN OUT	25
CLOCK, INPUT, -	40	←	- PCLK OUT	26

The DCF(s) mentioned in this application note can be found on the MIL and Native Library 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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