Application Note:
Interfacing non-standard cameras to Matrox Genesis

MATROX GENESIS

DVC 1310

October 5, 2000

Camera Descriptions	• 1300 × 1030/515 × 10-bit @ 12/24 fps. • Single channel RS-422/LVDS digital video output. • Progressive scan. • External synchronization. • Pixel clock rate: 20.25 MHz.
Interface mode	• Pseudo-continuous
Camera Interface Briefs	**Mode: Pseudo-continuous (normal mode)**  ***Matrox Genesis main board with grab module** ****Matrox RS-422 or LVDS digital data input board** • 1300 × 1030/515 × 10-bit @ 12/24 fps. • Single channel RS-422/LVDS digital video. • Progressive scan. • Continuous video. • Matrox Genesis receiving HSYNC (ENL), VSYNC (ENF), PIXEL CLOCK (PIXCLK @ 20.25 MHz) and video signals from camera. • DCF used: G1310C12.DCF (1300 × 1030 × 10-bit @ 12 fps) • DCF used: G1310C24.DCF (1300 × 515 × 10-bit @ 24 fps)
Camera Interface Details	**Mode: Pseudo-continuous (normal mode)** • **Frame rate:** Pseudo-continuous and fixed (12 or 24 fps), frame rate is inversely proportionate to the exposure time. • **Exposure time:** For this camera mode (normal), exposure time is fixed and inversely proportionate to the frame rate. Refer to the camera manual for more information. • **Camera switch settings:** Refer to the camera manual for additional information. Internal switches for this mode should be set as follows:

Setting/DCF	*G1310C12.DCF*	*G1310C24.DCF*
DB (8:1)	Disabled	Disabled
EXT	1	0
MC (2:0)	111	111

Cabling Requirements

Mode: Pseudo-continuous (normal mode)

- DBHD100-TO-OPEN cable and GEN/DIG/BRD/R/_ or GEN/DIG/BRD/L/_ board required for synchronization, control and video signals from camera.
- Connections should be made between the 44-pin connector (**DIGITAL VIDEO**) of the camera and Matrox Genesis are as follows:

GEN/DIG/BRD/_/_ (100-pin connector)			**DVC 1310 (44-pin connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
CLOCK, INPUT, -	40	←	PIXCLK-	16
CLOCK, INPUT, +	39	←	PIXCLK+	01
GROUND	37	←	GND	17
GROUND	38	←	GND	02
DATA, INPUT, 9-	20	←	D9- (MSB)	19
DATA, INPUT, 9+	19	←	D9+ (MSB)	04
EXPOSURE1, OUTPUT+	95	→	INOUT1+	34
DATA, INPUT, 8-	18	←	D8-	20
DATA, INPUT, 8+	17	←	D8+	05
EXPOSURE1, OUTPUT-	96	→	INOUT1-	35
DATA, INPUT, 7-	16	←	D7-	21
DATA, INPUT, 7+	15	←	D7+	06
CAM CTRL BIT2, OUTPUT, TTL	100	→	MC2	36
DATA, INPUT, 6-	14	←	D6-	22
DATA, INPUT, 6+	13	←	D6+	07
CAM CTRL BIT1, OUTPUT, TTL	99	→	MC1	37
DATA, INPUT, 5-	12	←	D5-	23
DATA, INPUT, 5+	11	←	D5+	08
CAM CTRL BIT0, OUTPUT, TTL	49	→	MC0	38
DATA, INPUT, 4-	10	←	D4-	24
DATA, INPUT, 4+	09	←	D4+	09
EXPOSURE1, OUTPUT, TTL*	87*	→	VRST_INT*	39*
DATA, INPUT, 3-	08	←	D3-	25
DATA, INPUT, 3+	07	←	D3+	10
DATA, INPUT, 2-	06	←	D2-	26
DATA, INPUT, 2+	05	←	D2+	11
GROUND	37	--	GND	41
DATA, INPUT, 1-	04	←	D1-	27
DATA, INPUT, 1+	03	←	D1+	12
DATA, INPUT, 0-	02	←	D0- (LSB)	28
DATA, INPUT, 0+	01	←	D0+ (LSB)	13

* This connection is not required for this mode, however allows this cable to be used with other modes.

continued

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Cabling Requirements

GEN/DIG/BRD/_/_ (100-pin connector)			DVC 1310 (44-pin connector)	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
GROUND	38	--	GND	43
VSYNC, INPUT -	36	←	ENF-	29
VSYNC, INPUT +	35	←	ENF+	14
HSYNC, INPUT -	34	←	ENL-	30
HSYNC, INPUT +	33	←	ENL+	15

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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