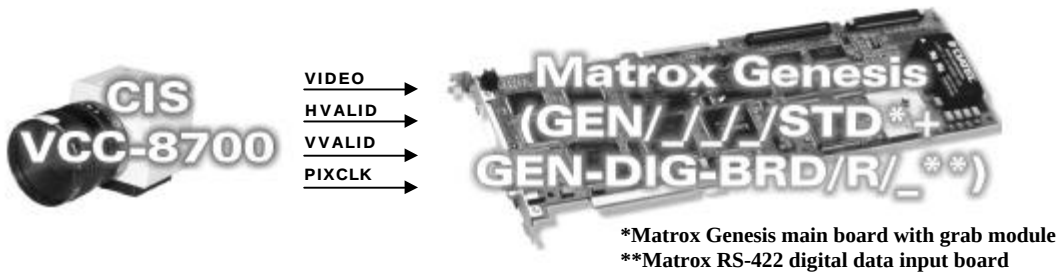
Application Note:
Interfacing non-standard cameras to Matrox Genesis

MATROX GENESIS

CIS VCC-8700

December 8, 2000

Camera Descriptions	• 1376 × 1032 × 8-bit @ up to 7.5 fps. • RGB RS-422 digital video output. • Progressive scan. • External or internal exposure control. • Internal or external sync. • 14.31818 MHz pixel clock rate.
Interface mode	• Continuous
Camera Interface Briefs	**Mode: Continuous**  ***Matrox Genesis main board with grab module** ****Matrox RS-422 digital data input board** • 1376 × 1032 × 8-bit @ up to 7.5 fps. • RGB RS-422 digital video. • Progressive scan. • Continuous video. • Matrox Genesis receiving HSYNC (HVALID), VSYNC (VVALID), PIXEL CLOCK (PIXCLK @ 14.31818 MHz) and video from camera. • DCF used: VCC8700.DCF
Camera Interface Details	**Mode: Continuous** • **Frame rate:** Matrox Genesis receives the continuous video from the camera at 7.5 fps. • **Exposure time:** Exposure time is inversely proportionate to the frame rate (no shutter) or determined by the camera shutter setting. Refer to the camera manual for additional information.
Cabling Requirements	**Mode: Continuous** • DBHD100-TO-OPEN (open ended) cable required for digital data, synchronization and control signals. • Connections between the 100-pin connector of Matrox Genesis and the 68-pin connector of the camera are as follows: **CIS VCC-8700 (68-pin connector)** → **GEN-DIG-BRD/R/_ (100-pin connector)** *Pin name* / *Pin no.* → *Pin name* / *Pin no.* G7+OUT (MSB) 33 → DATA, INPUT, 15+ 31 G7-OUT (MSB) 34 → DATA, INPUT, 15- 32 continued

Cabling Requirements (continued)

CIS VCC-8700 (68-pin connector)			GEN-DIG-BRD/R/_ (100-pin connector)	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
G6+OUT	31	→	DATA, INPUT, 14+	29
G6-OUT	32	→	DATA, INPUT, 14-	30
G5+OUT	29	→	DATA, INPUT, 13+	27
G5-OUT	30	→	DATA, INPUT, 13-	28
G4+OUT	27	→	DATA, INPUT, 12+	25
G4-OUT	28	→	DATA, INPUT, 12-	26
G3+OUT	25	→	DATA, INPUT, 11+	23
G3-OUT	26	→	DATA, INPUT, 11-	24
G2+OUT	23	→	DATA, INPUT, 10+	21
G2-OUT	24	→	DATA, INPUT, 10-	22
G1+OUT	21	→	DATA, INPUT, 09+	19
G1-OUT	22	→	DATA, INPUT, 09-	20
G0+OUT (LSB)	19	→	DATA, INPUT, 08+	17
G0-OUT (LSB)	20	→	DATA, INPUT, 08-	18
B7+OUT (MSB)	15	→	DATA, INPUT, 23+	65
B7-OUT (MSB)	16	→	DATA, INPUT, 23-	66
B6+OUT	13	→	DATA, INPUT, 22+	63
B6-OUT	14	→	DATA, INPUT, 22-	64
B5+OUT	11	→	DATA, INPUT, 21+	61
B5-OUT	12	→	DATA, INPUT, 21-	62
B4+OUT	09	→	DATA, INPUT, 20+	59
B4-OUT	10	→	DATA, INPUT, 20-	60
B3+OUT	07	→	DATA, INPUT, 19+	57
B3-OUT	08	→	DATA, INPUT, 19-	58
B2+OUT	05	→	DATA, INPUT, 18+	55
B2-OUT	06	→	DATA, INPUT, 18-	56
B1+OUT	03	→	DATA, INPUT, 17+	53
B1-OUT	04	→	DATA, INPUT, 17-	54
B0+OUT (LSB)	01	→	DATA, INPUT, 16+	51
B0-OUT (LSB)	02	→	DATA, INPUT, 16-	52

continued

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Cabling Requirements (continued)

CIS VCC-8700 (68-pin connector)			GEN-DIG-BRD/R/_ (100-pin connector)	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
R7+OUT (MSB)	49	→	DATA, INPUT, 7+	15
R7-OUT (MSB)	50	→	DATA, INPUT, 7-	16
R6+OUT	47	→	DATA, INPUT, 6+	13
R6-OUT	48	→	DATA, INPUT, 6-	14
R5+OUT	45	→	DATA, INPUT, 5+	11
R5-OUT	46	→	DATA, INPUT, 5-	12
R4+OUT	43	→	DATA, INPUT, 4+	09
R4-OUT	44	→	DATA, INPUT, 4-	10
R3+OUT	41	→	DATA, INPUT, 3+	07
R3-OUT	42	→	DATA, INPUT, 3-	08
R2+OUT	39	→	DATA, INPUT, 2+	05
R2-OUT	40	→	DATA, INPUT, 2-	06
R1+OUT	37	→	DATA, INPUT, 1+	03
R1-OUT	38	→	DATA, INPUT, 1-	04
R0+OUT (LSB)	35	→	DATA, INPUT, 0+	01
G0-OUT (LSB)	36	→	DATA, INPUT, 1-	02
CLOCK+OUT	57	→	CLOCK, INPUT, +	39
CLOCK-OUT	58	→	CLOCK, INPUT, -	40
HSYNC+OUT	55	→	HSYNC, INPUT, +	33
HSYNC-OUT	56	→	HSYNC, INPUT, -	34
VSYNC+OUT	53	→	VSYNC, INPUT, +	35
VSYNC-OUT	54	→	VSYNC, INPUT, -	36
GND	51	--	GROUND	50

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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