

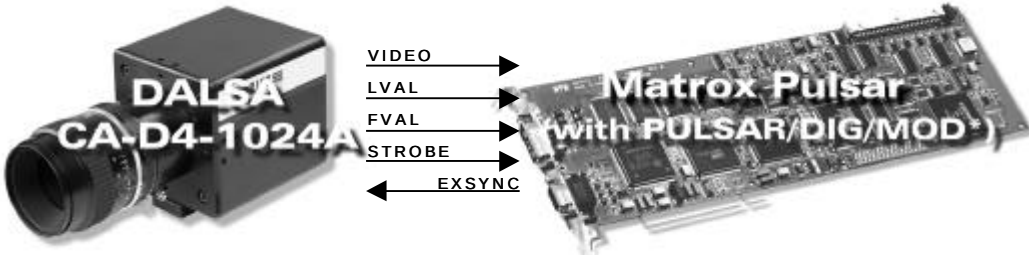
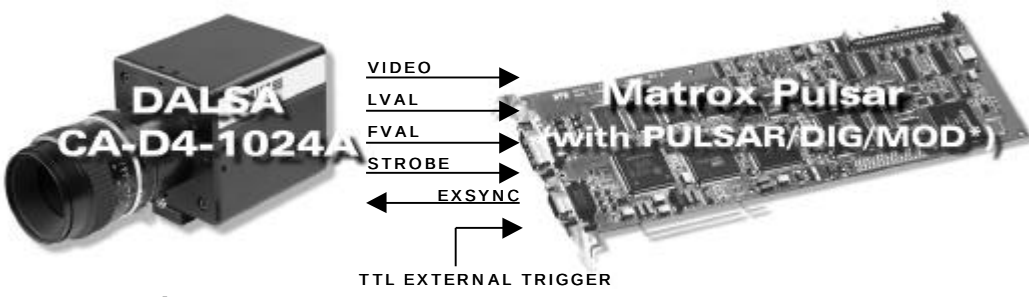
Application Note:

Interfacing non-standard cameras to Matrox Pulsar

MATROX
PULSAR

DALSA CA-D4-1024A

April 13, 1998

Camera Descriptions	• 1024 x 1024 x 8-bit • Single or dual digital video output (RS-422). • Maximum data rate per output: 25MHz. • Exposure control
Interface Modes	• Continuous, asynchronous reset with single video output N.B. Only single channel mode is supported with Matrox Pulsar (two channel mode requires frame reconstruction)
Camera Interface Briefs	Mode 1: Continuous mode (with periodic exposure)  * Matrox Digital Data Input Board • 1024 x 1022 x 8-bit • Digital video output (RS-422). • Non-interlaced. • Matrox Pulsar sending periodic RS-422 EXPOSURE1 (EXSYNC) signal to camera. The frequency of EXPOSURE1 signal determines the exposure time and the frame rate; the EXPOSURE1 signal initiates frame readout. • Matrox Pulsar receiving RS-422 HSYNC (LVAL) and RS-422 VSYNC (FVAL) signals from camera. • DCF used: CAD4D.DCF Mode 2: Asynchronous reset mode  * Matrox Digital Data Input Board • 1024 x 1022 x 8-bit • Digital video output (RS-422). • Non-interlaced. • Matrox Pulsar receiving TTL external trigger. • Matrox Pulsar sending RS-422 EXPOSURE1 (EXSYNC) signal to camera. The frequency of external trigger signal determines the exposure time and the frame rate; the EXPOSURE1 signal initiates frame readout. • Matrox Pulsar receiving RS-422 HSYNC (LVAL) and RS-422 VSYNC (FVAL) signals from camera. • DCF used: CAD4DA.DCF

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Cabling Requirements	Mode 1 : Continuous mode			
	• The connections between the two 20-pin dual-row connector (0S1) of the camera and the 68-pin connector of the PULSAR/CBL/OPEN are as follows:			
	DALSA CA-D4-1024A (OS1 20-pin IDC connector)		PULSAR/DIG/MOD (PULSAR/CBL/OPEN connector)	
	Pin name	Pin no.	Pin name	Pin no.
	D7	1 →	DATA, INPUT, 7+	10
	D7B	2 →	DATA, INPUT, 7-	44
	D6	3 →	DATA, INPUT, 6+	11
	D6B	4 →	DATA, INPUT, 6-	45
	D5	5 →	DATA, INPUT, 5+	13
	D5B	6 →	DATA, INPUT, 5-	47
	D4	7 →	DATA, INPUT, 4+	14
	D4B	8 →	DATA, INPUT, 4-	48
	D3	9 →	DATA, INPUT, 3+	15
	D3B	10 →	DATA, INPUT, 3-	49
	D2	11 →	DATA, INPUT, 2+	16
	D2B	12 →	DATA, INPUT, 2-	50
	D1	13 →	DATA, INPUT, 1+	19
	D1B	14 →	DATA, INPUT, 1-	53
	D0	15 →	DATA, INPUT, 0+	20
	D0B	16 →	DATA, INPUT, 0-	54
	STROBE B	17 →	CLOCK, INPUT, +	29
	STROBE	18 →	CLOCK, INPUT, -	63
	LVAL	19 →	HYSNC, INPUT, +	26
	LVAL B	20 →	HSYNC, INPUT, -	60
	• The connections between the two 20-pin dual-row connector (0S2) of the camera and the 68-pin connector of the PULSAR/CBL/OPEN are as follows:			
DALSA CA-D4-1024A (OS2 20-pin IDC connector)		PULSAR/DIG/MOD (PULSAR/CBL/OPEN connector)		
Pin name	Pin no.	Pin name	Pin no.	
FVAL	17 →	VSYNC, INPUT, +	25	
FVALB	18 →	VSYNC, INPUT, -	59	
• The connections between the DB-25 connector on the rear panel of the camera and the 68-pin connector of the PULSAR/CBL/OPEN are as follows:				
DALSA CA-D4-1024A (DB-25 male connector)		PULSAR/DIG/MOD (PULSAR/CBL/OPEN connector)		
Pin name	Pin no.	Pin name	Pin no.	
EXSYNC	17* ←	EXPOSURE, OUTPUT, 1+	30	
EXSYNCB	04* ←	EXPOSURE, OUTPUT, 1-	64	
PRIN	05 to 13 (jumper)			
PRINB	18 to 7 (jumper)			
BIN	1 to 8 (jumper)			
BIN B	14 to 24 (jumper)			

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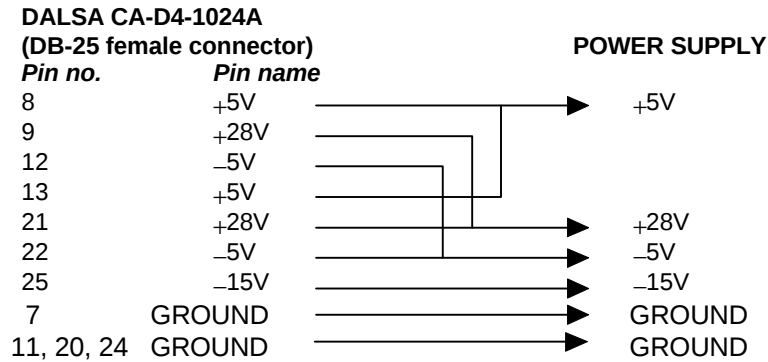


DALSA CA-D4-1024A

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Cabling Requirements (continued)

- The connections between the DB-25 connector on the rear panel of the camera and the power supply are as follows:



NOTE: it is very important that all the GROUNDs of the camera are connected to the POWER SUPPLY GROUND, which in turn must be connected to the GROUND of the Matrox Pulsar.

Mode 2: Asynchronous reset mode

- IMG-7W2-TO-5BNC cable required for TTL external trigger signal source and PULSAR/DIG/MOD required for digital data, sync and control signals in RS-422 format.
- TTL external trigger source should be connected to the TTL trigger input of the IMG-7W2-TO-5BNC cable.
- All other connection are as in *Mode 2: Continuous mode (with periodic exposure)*

The DCF(s) mentioned in this application note can be found on the MIL and MIL-Lite CD, or our FTP site ([ftp.matrox.com](ftp://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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