

Application Note:

Interfacing non-standard cameras to Matrox Pulsar

Cohu 4110

July 31, 1996

Camera Interface Overview	• 739 x 484 x 8-bit • digital video output (RS-422) • interlaced • internal hsync, vsync (RS-422) • internal and external pixel clock signals (RS-422) • pixel clock rate: 10 MHz or 14.3 MHz • external exposure control • modes of operation: continuous (normal and multiple vertical reset), and shutter																																																																																
Camera Interface Details	1. Continuous mode • 740 x 480 x 8-bit • interlaced • continuous video digital output (8-bit, RS-422) • pixel clock: 14.318 MHz • DCFs used: 4110D.DCF																																																																																
Cabling Requirements	1. Continuous mode • PULSAR/DIG/MOD required for digital data in RS-422 format • the following connections should be made between the DB-44 connector of the camera and the 68-pin SCSI-2 connector of PULSAR/DIG/MOD <table><tr><th colspan="2">PULSAR/DIG/MOD (PLS/CBL/OPEN connector)</th><th></th><th colspan="2">Cohu 4110 (DB-44 plug)</th></tr><tr><th>Pin name</th><th>Pin no.</th><th></th><th>Pin name</th><th>Pin no.</th></tr><tr><td>CLKOUT+</td><td>24</td><td>→</td><td>CLOCKIN+</td><td>2</td></tr><tr><td>CLKOUT-</td><td>58</td><td>→</td><td>CLOCKIN-</td><td>1</td></tr><tr><td>DATA0+</td><td>20</td><td>←</td><td>DATA0+</td><td>8</td></tr><tr><td>DATA1+</td><td>19</td><td>←</td><td>DATA1+</td><td>9</td></tr><tr><td>DATA2+</td><td>16</td><td>←</td><td>DATA2+</td><td>10</td></tr><tr><td>DATA3+</td><td>15</td><td>←</td><td>DATA3+</td><td>11</td></tr><tr><td>DATA4+</td><td>14</td><td>←</td><td>DATA4+</td><td>12</td></tr><tr><td>DATA5+</td><td>13</td><td>←</td><td>DATA5+</td><td>13</td></tr><tr><td>DATA6+</td><td>11</td><td>←</td><td>DATA6+</td><td>14</td></tr><tr><td>DATA7+</td><td>10</td><td>←</td><td>DATA7+</td><td>15</td></tr><tr><td>DATA0-</td><td>54</td><td>←</td><td>DATA0-</td><td>23</td></tr><tr><td>DATA1-</td><td>53</td><td>←</td><td>DATA1-</td><td>24</td></tr><tr><td>DATA2-</td><td>50</td><td>←</td><td>DATA2-</td><td>25</td></tr><tr><td>DATA3-</td><td>49</td><td>←</td><td>DATA3-</td><td>26</td></tr></table> (pin-out continued)	PULSAR/DIG/MOD (PLS/CBL/OPEN connector)			Cohu 4110 (DB-44 plug)		Pin name	Pin no.		Pin name	Pin no.	CLKOUT+	24	→	CLOCKIN+	2	CLKOUT-	58	→	CLOCKIN-	1	DATA0+	20	←	DATA0+	8	DATA1+	19	←	DATA1+	9	DATA2+	16	←	DATA2+	10	DATA3+	15	←	DATA3+	11	DATA4+	14	←	DATA4+	12	DATA5+	13	←	DATA5+	13	DATA6+	11	←	DATA6+	14	DATA7+	10	←	DATA7+	15	DATA0-	54	←	DATA0-	23	DATA1-	53	←	DATA1-	24	DATA2-	50	←	DATA2-	25	DATA3-	49	←	DATA3-	26
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Cabling Requirements (Continued)	PULSAR/DIG/MOD (PLS/CBL/OPEN connector)			Cohu 4110 (DB-44 plug)	
	<i>Pin name</i>	<i>Pin no.</i>		<i>Pin name</i>	<i>Pin no.</i>
	DATA4-	48	←	DATA4-	27
	DATA5-	47	←	DATA5-	28
	DATA6-	45	←	DATA6-	29
	DATA7-	44	←	DATA7-	30
	HSYNC+	26	←	ENABLE LINE +	34
	HSYNC-	60	←	ENABLE LINE -	19
	VSYNC+	25	←	ENABLE FRAME +	35
	VSYNC-	59	←	ENABLE FRAME -	20
	GROUND	12		GROUND, DIGITAL	7
	GROUND	46		GROUND, DIGITAL	22
	GROUND	68		GROUND	36
	TTL_USR0	31	→	INT/EXT	40
	CLKIN+	29	←	CLOCKOUT+	31
	CLKIN-	63	←	CLOCKOUT-	16
Special Considerations	• Use Matrox Intellicam in order to modify the DCF for RS-422 external trigger input. Consult the Matrox Intellicam User Guide for more information. Contact your local sales representative or Matrox Sales Office, or contact Matrox Imaging Applications at 514-822-6061 for assistance (if required).				

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: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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