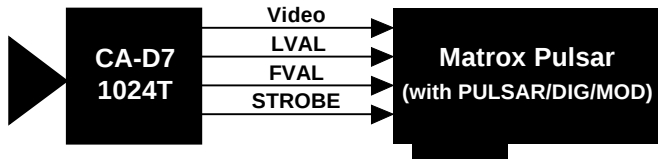
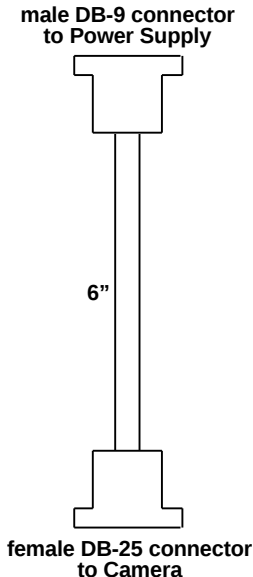


# Application Note:

## Interfacing non-standard cameras to Matrox Pulsar

**DALSA CA-D7-1024T**

**March 13, 1996**

| Camera Interface Overview              | <ul style="list-style-type: none"><li>• 1024 x 1021 x 12-bit @ 8fps (max)</li><li>• digital video output (RS-422)</li><li>• non-interlaced</li><li>• internal hsync, vsync and pixel clock signals (all RS-422) supplied externally</li><li>• 10MHz pixel clock rate</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                        |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--|----------------------------------|----------|---------|---------|------------|---|---|------------|----|---|------|----|---|------|---|---|------|----|---|-------------|----|---|-------------|----|---|------|----|---|------|----|---|------|---|---|------|----|---|--------|----|--------------------------------|---------|---|---------------------------------------|-----|----|-------------------------------|------|---|---------------------------------------|------|---|---------------------------------------|-------|----|--------------------------------|
| Camera Interface Details               | <p><b>Continuous mode</b></p> <ul style="list-style-type: none"><li>• 1024 x 1021 x 12-bit @ 8fps (10-bit acquisition also available)</li><li>• Digital video output (RS-422)</li><li>• Non-interlaced</li><li>• Continuous video</li><li>• Matrox Pulsar receiving RS-422 hsync (Line Valid or LVAL), vsync (Frame Valid or FVAL) and pixel clock (STROBE @ 10MHz) signals from camera</li><li>• DCF used: <a href="#">CAD7T12.DCF</a> (12-bit acquisition); <a href="#">CAD7T10.DCF</a> (10-bit acquisition)</li></ul> <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                        |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| Cabling Requirements                   | <p><b>Continuous mode</b></p> <ul style="list-style-type: none"><li>• PULSAR/DIG/MOD required for digital data and syncs in RS-422 format</li><li>• The connections between the DB-25 connector of the camera and the DB-9 connector of the power supply are as follows:</li></ul> <table><tr><th colspan="2">DALSA CA-D7-1024T<br/>(DB-25 connector)</th><th>Power Supply<br/>(DB-9 connector)</th></tr><tr><th>Pin name</th><th>Pin no.</th><th>Pin no.</th></tr><tr><td>+5V ANALOG</td><td>8</td><td>8</td></tr><tr><td>-5V ANALOG</td><td>22</td><td>6</td></tr><tr><td>+15V</td><td>21</td><td>9</td></tr><tr><td>+15V</td><td>9</td><td>9</td></tr><tr><td>-15V</td><td>25</td><td>1</td></tr><tr><td>+5V DIGITAL</td><td>13</td><td>3</td></tr><tr><td>-5V DIGITAL</td><td>12</td><td>2</td></tr><tr><td>AGND</td><td>11</td><td>7</td></tr><tr><td>AGND</td><td>24</td><td>7</td></tr><tr><td>DGND</td><td>7</td><td>4</td></tr><tr><td>DGND</td><td>20</td><td>4</td></tr></table> <div></div> <table><tr><td>EXSYNC</td><td>17</td><td>(jumper to DGND, e.g., pin 20)</td></tr><tr><td>EXSYNCB</td><td>4</td><td>(jumper to +5V DIGITAL, e.g., pin 13)</td></tr><tr><td>BIN</td><td>14</td><td>(jumper to DGND, e.g., pin 7)</td></tr><tr><td>BINB</td><td>1</td><td>(jumper to +5V DIGITAL, e.g., pin 13)</td></tr><tr><td>MCLK</td><td>6</td><td>(jumper to +5V DIGITAL, e.g., pin 13)</td></tr><tr><td>MCLKB</td><td>19</td><td>(jumper to DGND, e.g., pin 20)</td></tr></table> | DALSA CA-D7-1024T<br>(DB-25 connector) |  | Power Supply<br>(DB-9 connector) | Pin name | Pin no. | Pin no. | +5V ANALOG | 8 | 8 | -5V ANALOG | 22 | 6 | +15V | 21 | 9 | +15V | 9 | 9 | -15V | 25 | 1 | +5V DIGITAL | 13 | 3 | -5V DIGITAL | 12 | 2 | AGND | 11 | 7 | AGND | 24 | 7 | DGND | 7 | 4 | DGND | 20 | 4 | EXSYNC | 17 | (jumper to DGND, e.g., pin 20) | EXSYNCB | 4 | (jumper to +5V DIGITAL, e.g., pin 13) | BIN | 14 | (jumper to DGND, e.g., pin 7) | BINB | 1 | (jumper to +5V DIGITAL, e.g., pin 13) | MCLK | 6 | (jumper to +5V DIGITAL, e.g., pin 13) | MCLKB | 19 | (jumper to DGND, e.g., pin 20) |
| DALSA CA-D7-1024T<br>(DB-25 connector) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Power Supply<br>(DB-9 connector)       |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| Pin name                               | Pin no.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Pin no.                                |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| +5V ANALOG                             | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| -5V ANALOG                             | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 6                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| +15V                                   | 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| +15V                                   | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 9                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| -15V                                   | 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| +5V DIGITAL                            | 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| -5V DIGITAL                            | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| AGND                                   | 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 7                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| AGND                                   | 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 7                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| DGND                                   | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| DGND                                   | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4                                      |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| EXSYNC                                 | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | (jumper to DGND, e.g., pin 20)         |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| EXSYNCB                                | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | (jumper to +5V DIGITAL, e.g., pin 13)  |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| BIN                                    | 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | (jumper to DGND, e.g., pin 7)          |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| BINB                                   | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | (jumper to +5V DIGITAL, e.g., pin 13)  |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| MCLK                                   | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | (jumper to +5V DIGITAL, e.g., pin 13)  |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |
| MCLKB                                  | 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | (jumper to DGND, e.g., pin 20)         |  |                                  |          |         |         |            |   |   |            |    |   |      |    |   |      |   |   |      |    |   |             |    |   |             |    |   |      |    |   |      |    |   |      |   |   |      |    |   |        |    |                                |         |   |                                       |     |    |                               |      |   |                                       |      |   |                                       |       |    |                                |

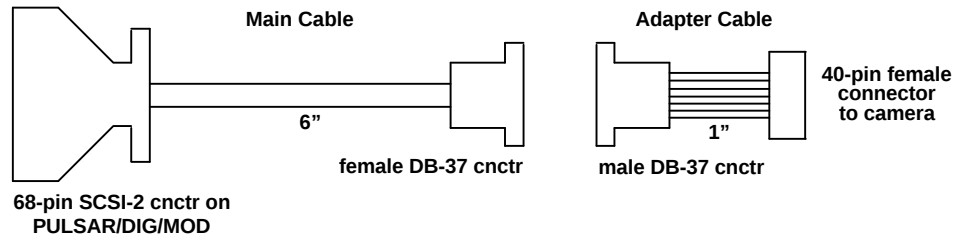
# Application Note:

## Interfacing non-standard cameras to Matrox Pulsar

**DALSA CA-D7-1024T**

**March 13, 1996**

### Cabling Requirements



The connections between the 68-pin connector of the PULSAR/DIG/MOD, the female DB-37 connector of the main cable, the male DB-37 connector of the adapter cable and the 40-pin connector of the camera for **12-bit** acquisition are as follows:

| PULSAR/DIG/MOD<br>(68-pin SCSI-2 cnctr) |         | Main Cable (DB-37 female cnctr)/<br>Adapter Cable (DB-37 male cnctr) |         | DALSA CA-D7-1024T<br>(40-pin OS1 cnctr) |          |
|-----------------------------------------|---------|----------------------------------------------------------------------|---------|-----------------------------------------|----------|
| Pin name                                | Pin no. |                                                                      | Pin no. | Pin no.                                 | Pin name |
| DATA11+                                 | 6       | ←                                                                    | 1       | 9                                       | D11      |
| DATA11-                                 | 40      | ←                                                                    | 20      | 10                                      | D11B     |
| DATA10+                                 | 7       | ←                                                                    | 2       | 11                                      | D10      |
| DATA10-                                 | 41      | ←                                                                    | 21      | 12                                      | D10B     |
| DATA9+                                  | 8       | ←                                                                    | 3       | 13                                      | D9       |
| DATA9-                                  | 42      | ←                                                                    | 22      | 14                                      | D9B      |
| DATA8+                                  | 9       | ←                                                                    | 4       | 15                                      | D8       |
| DATA8-                                  | 43      | ←                                                                    | 23      | 16                                      | D8B      |
| VSYNC+                                  | 25      | ←                                                                    | 5       | 17                                      | FVAL     |
| VSYNC-                                  | 59      | ←                                                                    | 24      | 18                                      | FVALB    |
| DATA15+                                 | 2       |                                                                      | 36      | 19                                      | GND      |
| DATA14+                                 | 3       |                                                                      | 36      | 19                                      | GND      |
| DATA13+                                 | 4       |                                                                      | 36      | 19                                      | GND      |
| DATA12+                                 | 5       |                                                                      | 36      | 19                                      | GND      |
| DATA15-                                 | 36      |                                                                      | 37      | 20                                      | VCC      |
| DATA14-                                 | 37      |                                                                      | 37      | 20                                      | VCC      |
| DATA13-                                 | 38      |                                                                      | 37      | 20                                      | VCC      |
| DATA12-                                 | 39      |                                                                      | 37      | 20                                      | VCC      |
| DATA7+                                  | 10      | ←                                                                    | 6       | 21                                      | D7       |
| DATA7-                                  | 44      | ←                                                                    | 25      | 22                                      | D7B      |
| DATA6+                                  | 11      | ←                                                                    | 7       | 23                                      | D6       |
| DATA6-                                  | 45      | ←                                                                    | 26      | 24                                      | D6B      |
| DATA5+                                  | 13      | ←                                                                    | 8       | 25                                      | D5       |
| DATA5-                                  | 47      | ←                                                                    | 27      | 26                                      | D5B      |
| DATA4+                                  | 14      | ←                                                                    | 9       | 27                                      | D4       |
| DATA4-                                  | 48      | ←                                                                    | 28      | 28                                      | D4B      |
| DATA3+                                  | 15      | ←                                                                    | 10      | 29                                      | D3       |
| DATA3-                                  | 49      | ←                                                                    | 29      | 30                                      | D3B      |
| DATA2+                                  | 16      | ←                                                                    | 11      | 31                                      | D2       |
| DATA2-                                  | 50      | ←                                                                    | 30      | 32                                      | D2B      |
| DATA1+                                  | 19      | ←                                                                    | 12      | 33                                      | D1       |
| DATA1-                                  | 53      | ←                                                                    | 31      | 34                                      | D1B      |
| DATA0+                                  | 20      | ←                                                                    | 13      | 35                                      | D0       |
| DATA0-                                  | 54      | ←                                                                    | 32      | 36                                      | D0B      |
| CLKIN+                                  | 29      | ←                                                                    | 14      | 37                                      | STROBE   |
| CLKIN-                                  | 63      | ←                                                                    | 33      | 38                                      | STROBEB  |
| HSYNC+                                  | 26      | ←                                                                    | 15      | 39                                      | LVAL     |
| HSYNC-                                  | 60      | ←                                                                    | 34      | 40                                      | LVALB    |

# Application Note:

## Interfacing non-standard cameras to Matrox Pulsar

**DALSA CA-D7-1024T**

**13/03/96**

### Cabling Requirements

- The connections between the 68-pin connector of the PULSAR/DIG/MOD, the female DB-37 connector of the main cable, the male DB-37 connector of the adapter cable and the 40-pin connector of the camera for **10-bit** acquisition are as follows:

| PULSAR/DIG/MOD<br>(68-pin SCSI-2 cnctr) |         |   | Main Cable (DB-37 female cnctr)/<br>Adapter Cable (DB-37 male cnctr) |  | DALSA CA-D7-1024T<br>(40-pin OS1 cnctr) |          |
|-----------------------------------------|---------|---|----------------------------------------------------------------------|--|-----------------------------------------|----------|
| Pin name                                | Pin no. |   | Pin no.                                                              |  | Pin no.                                 | Pin name |
| DATA9+                                  | 8       | ← | 3                                                                    |  | 9                                       | D11      |
| DATA9-                                  | 42      | ← | 22                                                                   |  | 10                                      | D11B     |
| DATA8+                                  | 9       | ← | 4                                                                    |  | 11                                      | D10      |
| DATA8-                                  | 43      | ← | 23                                                                   |  | 12                                      | D10B     |
| DATA7+                                  | 10      | ← | 6                                                                    |  | 13                                      | D9       |
| DATA7-                                  | 44      | ← | 25                                                                   |  | 14                                      | D9B      |
| DATA6+                                  | 11      | ← | 7                                                                    |  | 15                                      | D8       |
| DATA6-                                  | 45      | ← | 26                                                                   |  | 16                                      | D8B      |
| VSYNC+                                  | 25      | ← | 5                                                                    |  | 17                                      | FVAL     |
| VSYNC-                                  | 59      | ← | 24                                                                   |  | 18                                      | FVALB    |
| DATA15+                                 | 2       |   | 36                                                                   |  | 19                                      | GND      |
| DATA14+                                 | 3       |   | 36                                                                   |  | 19                                      | GND      |
| DATA13+                                 | 4       |   | 36                                                                   |  | 19                                      | GND      |
| DATA12+                                 | 5       |   | 36                                                                   |  | 19                                      | GND      |
| DATA11+                                 | 6       |   | 1                                                                    |  | 19                                      | GND      |
| DATA10+                                 | 7       |   | 2                                                                    |  | 19                                      | GND      |
| DATA15-                                 | 36      |   | 37                                                                   |  | 20                                      | VCC      |
| DATA14-                                 | 37      |   | 37                                                                   |  | 20                                      | VCC      |
| DATA13-                                 | 38      |   | 37                                                                   |  | 20                                      | VCC      |
| DATA12-                                 | 39      |   | 37                                                                   |  | 20                                      | VCC      |
| DATA11-                                 | 40      |   | 20                                                                   |  | 20                                      | VCC      |
| DATA10-                                 | 41      |   | 21                                                                   |  | 20                                      | VCC      |
| DATA5+                                  | 13      | ← | 8                                                                    |  | 21                                      | D7       |
| DATA5-                                  | 47      | ← | 27                                                                   |  | 22                                      | D7B      |
| DATA4+                                  | 14      | ← | 9                                                                    |  | 23                                      | D6       |
| DATA4-                                  | 48      | ← | 28                                                                   |  | 24                                      | D6B      |
| DATA3+                                  | 15      | ← | 10                                                                   |  | 25                                      | D5       |
| DATA3-                                  | 49      | ← | 29                                                                   |  | 26                                      | D5B      |
| DATA2+                                  | 16      | ← | 11                                                                   |  | 27                                      | D4       |
| DATA2-                                  | 50      | ← | 30                                                                   |  | 28                                      | D4B      |
| DATA1+                                  | 19      | ← | 12                                                                   |  | 29                                      | D3       |
| DATA1-                                  | 53      | ← | 31                                                                   |  | 30                                      | D3B      |
| DATA0+                                  | 20      | ← | 13                                                                   |  | 31                                      | D2       |
| DATA0-                                  | 54      | ← | 32                                                                   |  | 32                                      | D2B      |
| n.c.                                    |         |   |                                                                      |  | 33                                      | D1       |
| n.c.                                    |         |   |                                                                      |  | 34                                      | D1B      |
| n.c.                                    |         |   |                                                                      |  | 35                                      | D0       |
| n.c.                                    |         |   |                                                                      |  | 36                                      | D0B      |
| CLKIN+                                  | 29      | ← | 14                                                                   |  | 37                                      | STROBE   |
| CLKIN-                                  | 63      | ← | 33                                                                   |  | 38                                      | STROBEB  |
| HSYNC+                                  | 26      | ← | 15                                                                   |  | 39                                      | LVAL     |
| HSYNC-                                  | 60      | ← | 34                                                                   |  | 40                                      | LVALB    |

**NOTE:** for 12-bit and 10-bit acquisition, it is very important that the GROUND of the camera be connected to the POWER SUPPLY GROUND, which in turn must be connected to the GROUND of the Pulsar.

# Application Note:

## Interfacing non-standard cameras to Matrox Pulsar

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**DALSA CA-D7-1024T**

**March 13, 1996**

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <b>Special Considerations</b> | <p><b>Continuous mode</b></p> <ul style="list-style-type: none"><li>• The main cable can be used without modification for both 12-bit and 10-bit acquisition; however, the adapter cable must be modified for 10-bit acquisition</li><li>• When high, the FVAL (vsync) signal indicates that a valid frame is being output; a high LVAL (hsync) signal indicates that a valid line is being output. The falling edge of the STROBE (pixel clock) signal indicates that a valid pixel is being output. The first falling edge of STROBE after LVAL goes high with FVAL high marks the first valid pixel of data</li><li>• The DCFs can be modified for asynchronous reset and exposure control; contact Matrox Imaging Applications at (514) 822-6061 for assistance</li></ul> |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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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