

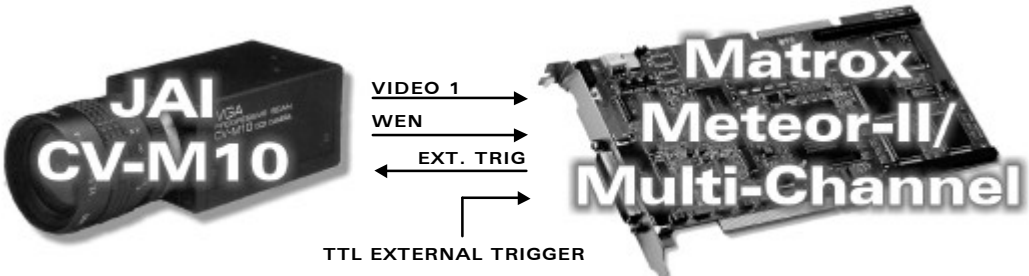
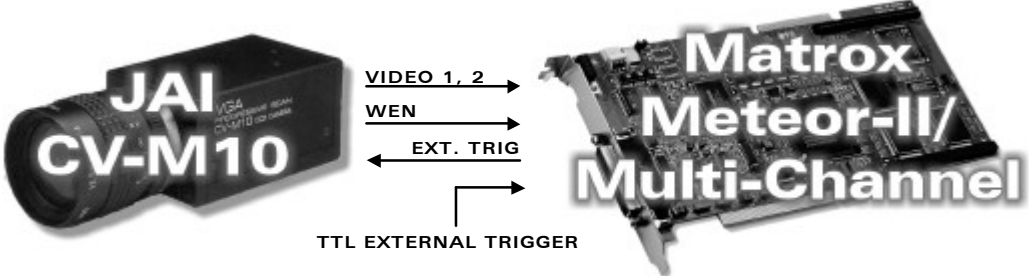
# Application Note:

## Interfacing non-standard cameras to Matrox Meteor-II



JAI CV-M10

August 28, 2000

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Camera Descriptions</b>     | <ul style="list-style-type: none"> <li>• 640 × 480 × 8-bit @ 30 fps or 764 × 578 × 8-bit @ 25 fps.</li> <li>• Single or dual channel analog video output.</li> <li>• Progressive scan.</li> <li>• Internal (composite) or external sync.</li> <li>• External and internal exposure control.</li> <li>• Pixel clock rate: 12.7 MHz (RS-170) 14.7 MHz (CCIR)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Interface modes</b>         | <ul style="list-style-type: none"> <li>• Asynchronous reset (single, dual channel)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Camera Interface Briefs</b> | <p><b>Mode 1: Asynchronous reset (single channel)</b></p>  <ul style="list-style-type: none"> <li>• 764 × 578 × 8-bit (CCIR)</li> <li>• 640 × 480 × 8-bit (RS-170).</li> <li>• Single channel analog video.</li> <li>• Progressive scan.</li> <li>• Matrox Meteor-II receiving TTL external trigger.</li> <li>• Matrox Meteor-II sending EXPOSURE1 (EXT TRIGGER) signal to camera.</li> <li>• Matrox Meteor-II receiving VSYNC (WEN) and video signals from camera.</li> <li>• DCF used: <a href="#">CVM10AN1.DCF</a> (CCIR)</li> <li>• DCF used: <a href="#">CVM10AN2.DCF</a> (RS-170)</li> </ul> <p><b>Mode 2: Asynchronous reset (dual channel)</b></p>  <ul style="list-style-type: none"> <li>• 764 × 578 × 8-bit (CCIR)</li> <li>• 640 × 482 × 8-bit (RS-170).</li> <li>• Dual channel analog video.</li> <li>• Progressive scan.</li> <li>• Matrox Meteor-II receiving TTL external trigger.</li> <li>• Matrox Meteor-II sending EXPOSURE1 (EXT. TRIGGER) signal to camera.</li> <li>• Matrox Meteor-II receiving VSYNC (WEN) and video signals from camera.</li> <li>• DCF used: <a href="#">CVM10AB1.DCF</a> (CCIR)</li> <li>• DCF used: <a href="#">CVM10AB2.DCF</a> (RS-170)</li> </ul> |

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### Camera Interface Details

#### External and internal switch settings:

##### Mode 1: Asynchronous reset mode (Single channel)

External SW1 on camera's rear

| OFF | ON |
|-----|----|
| •   |    |
| •   |    |
| •   |    |
|     | •  |
| •   |    |
| •   |    |
| •   |    |

- 1 Shutter speed D2
- 2 Shutter speed D1
- 3 Shutter speed D0
- 4 Random trigger
- 5 Interface system
- 6 Gamma
- 7 AGC
- 8 Gain

- Switches 1-3 set as desired (exposure time)
- Switch 5 set to ON
- Switches 6-8 set to OFF

Internal SW1 on PK8080 board

| OFF | ON |
|-----|----|
| •   |    |
| •   |    |
|     | •  |
| •   |    |

- 1 Shutter mode: MD0
- 2 Not Connected
- 3 Shutter mode: MD1
- 4 Shutter mode: MD2

- Normal speed set 3 to ON
- High speed set 1 and 3 to ON
- All others switches are set to OFF

##### Mode 2: Asynchronous reset mode (Dual Channel)

External SW1 on camera's rear

| OFF | ON |
|-----|----|
| •   |    |
| •   |    |
| •   |    |
| •   |    |
| •   |    |
| •   |    |
| •   |    |

- 1 Shutter speed D2
- 2 Shutter speed D1
- 3 Shutter speed D0
- 4 Random trigger
- 5 Interface system
- 6 Gamma
- 7 AGC
- 8 Gain

- Switches 1-3 set as desired (exposure time)
- Switch 5 set to ON
- Switches 6-8 set to OFF

Internal SW1 on PK8080 board

| OFF | ON |
|-----|----|
| •   |    |
| •   |    |
|     | •  |
| •   |    |

- 1 Shutter mode: MD0
- 2 Not Connected
- 3 Shutter mode: MD1
- 4 Shutter mode: MD2

- Normal speed set 3 to ON
- High speed set 1 and 3 to ON
- All others switches are set to OFF

#### Modes 1, 2: Asynchronous Reset (single, dual channel)

- **Frame rate:** Frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** Exposure time is set using the external switches (SW1) on the camera's rear. Consult the camera manual for more information.

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### Cabling Requirements

#### Modes 1: Asynchronous rest (single channel)

- DBHD44-TO-8BNC/O cable required for video output of camera.
- Connections between the top and bottom BNC video output connectors of the camera and the 44-pin connector of the Matrox Meteor-II are as follows:

##### JAI CV-M10

(BNC connector)

*Pin name*

*Pin no.*

VIDEO 1

--

→

##### METEOR2-MC/2

(44-pin digital interface connector)

*Pin name*

*Pin no.*

VID\_IN1

15

#### Modes 2: Asynchronous rest (dual channel)

- DBHD44-TO-8BNC/O cable required for video output of camera.
- Connections between the top and bottom BNC video output connectors of the camera and the 44-pin connector of the Matrox Meteor-II are as follows:

##### JAI CV-M10

(BNC connector)

*Pin name*

*Pin no.*

VIDEO 1

--

→

VIDEO 2

--

→

##### METEOR2-MC/2

(44-pin digital interface connector)

*Pin name*

*Pin no.*

VID\_IN1

15

VID\_IN2

44

- Connections between the 6-pin multi connector (RS-232C) of the camera and the 44-pin connector of the Matrox Meteor-II are as follows:

##### JAI CV-M10

(6-pin multi connector)

*Pin name*

*Pin no.*

TRIGGER INPUT

05

→

WEN PULSE

06

→

##### METEOR2-MC/2

(44-pin digital interface connector)

*Pin name*

*Pin no.*

EXP(1)

38

V\_VSYNC

32

- Connections between the external trigger source and the 44-pin connector of the Matrox Meteor-II are as follows:

##### EXTERNAL TRIGGER SOURCE

*Pin name*

*Pin no.*

H/W TRIG Cable

--

→

##### METEOR2-MC/2

(44-pin digital interface connector)

*Pin name*

*Pin no.*

OPTO\_TRIG, -, +

34, 35

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 Imaging Applications at 514-822-6061 for assistance.

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MET2-CID-009