

# Matrox Meteor-II/Digital

(METEOR2-DIG/4/L with PNS #5392)\*

## Camera Interface Application Note

FLOVEL AD-210

June 28, 2002

*Basics about the  
camera*

*Mode of operations as  
per Matrox Imaging (in  
parentheses as per  
camera manufacturer)*

*Basics about the  
interface modes*

### Camera Descriptions

- $1636 \times 1236 \times 10\text{-bit}$  @ 7.5 fps.
- Single channel LVDS digital video output.
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 18 MHz pixel clock rate.

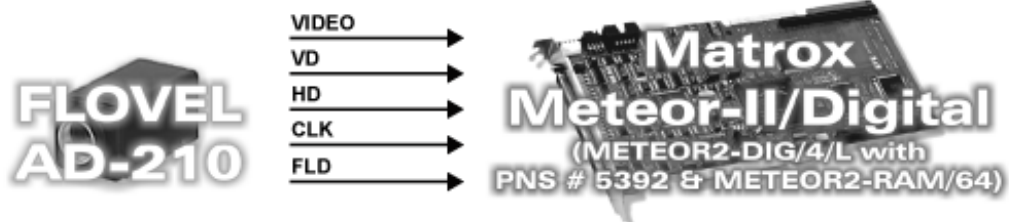
### Interface Modes

- Continuous
- Asynchronous reset (pulse width control)

### Camera Interface Briefs

#### Mode 1: Continuous

- $1636 \times 1236 \times 10\text{-bit}$  @ 7.5 fps.
- Single channel LVDS digital video.
- Interlaced scan.
- Matrox Meteor-II/Digital receiving HSYNC (HD), VSYNC (VD), FIELD ID (FLD), PIXEL CLOCK (CLK @ 18 MHz) and video from camera.
- DCF used: [FLAD210C.DCF](#) (Tested with MIL 6.1/GNL 2.1)



#### Mode 2: Asynchronous Reset (pulse width control)

- $1636 \times 1236 \times 10\text{-bit}$ .
- Single channel LVDS digital video.
- Interlaced scan.
- Matrox Meteor-II/Digital receiving external trigger signal.
- Matrox Meteor-II/Digital sending EXPOSURE1 (TRIG IN) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Digital receiving HSYNC (HD), VSYNC (VD), FIELD ID (FLD), PIXEL CLOCK (CLK @ 18 MHz) and video from camera.

Continued...

\* Also requires 64MB add-on module (METEOR2-RAM/64).

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## Camera Interface Application Note

FLOVEL AD-210

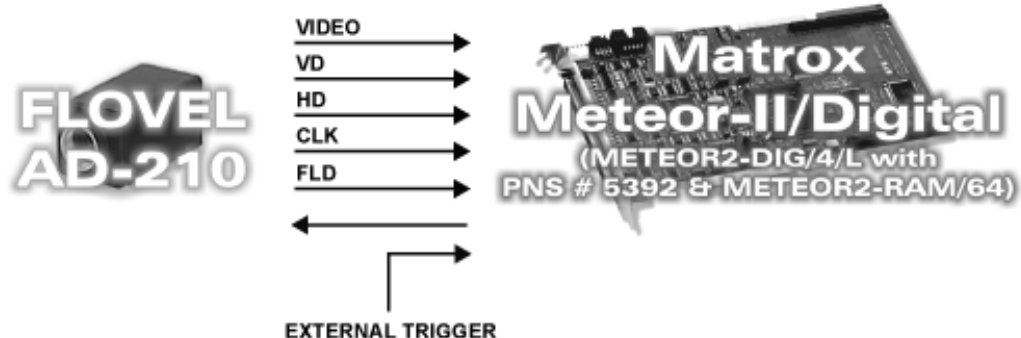
June 28, 2002

Basics about the  
interface modes

### Camera Interface Briefs (continued)

#### Mode 2: Asynchronous Reset (pulse width control)

- DCF used: [FLAD210A.DCF](#) (Tested with MIL 6.1/GNL 2.1)



Specifics about the  
interface modes

### Camera Interface Details

- A modified version of the Matrox Meteor-II/Digital board (specify PNS #5392 when ordering) is required for use with the FLOVEL AD-210 camera.

#### Mode 1: Continuous

- **Frame Rate:** Matrox Meteor-II/Digital receives the continuous video from the camera at 7.5 frames per second. **NOTE:** Use of the 64MB add-on module (METEOR2-RAM/64 sold separately) is required to capture at the full frame rate of 7.5 FPS. Since grabbing to on-board memory is required because of the digital interlaced video, the real-time double buffering scheme (as per the MMET2DIG.C example) requires approximately 8 MB total ( $2 \times 4 \text{ MB } [1636 \times 1236 \times 10\text{-bit}]$ ).
- **Exposure time:** Exposure time is inversely proportionate to the frame rate (no shutter) or determined by the shutter setting. Refer to the camera manual for more information.
- **Camera switch settings:** This DCF is compatible with the default camera settings. Refer to the camera manual for additional information.

#### Mode 2: Asynchronous Reset (pulse width control)

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. **NOTE:** See *Mode 1: Continuous*.
- **Exposure time:** The low level (pulse period) of the EXPOSURE1 (TRIG IN) signal is the exposure time. The default exposure time is equal to **21 ms**. The exposure time can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.

Continued...

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## Camera Interface Application Note

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Specifics about the  
interface modes

### Camera Interface Details (continued)

#### Mode 2: Asynchronous Reset (pulse width control)

- **Minimum exposure width:** minimum EXPOSURE1 (TRIG IN) pulse width is equal to **718 ms**.
- **Camera switch settings:** Refer to the camera manual for additional information. Settings are as follows:

| Random Trigger Pulse mode |         |
|---------------------------|---------|
| Switch                    | Setting |
| 1                         | OFF     |
| 2                         | ON      |
| 3                         | OFF     |
| 4                         | OFF     |
| 5                         | OFF     |
| 6                         | OFF     |
| 7                         | OFF     |
| 8                         | OFF     |



Switch location

- **External trigger:** For this DCF, the external trigger is connected to the OPTO TRIG signal, which is compatible with a TTL standard trigger signal. The OPTO TRIG input of the Matrox Meteor-II/Digital accepts a voltage of up to 8.5V; with an input current between 6.3mA and 10mA for best performance (absolute maximum equals 15mA).

### Cabling Requirements

#### Mode 1: Continuous

- **Cable:** DBHD100-TO-OPEN (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 36/12-pin connectors of the camera and the 100-pin connector of the Matrox Meteor-II/Digital are as follows:

| METEOR-II/DIGITAL<br>(100-pin connector) |         |   | FLOVEL AD-210<br>(36-pin connector) |         |
|------------------------------------------|---------|---|-------------------------------------|---------|
| Pin name                                 | Pin no. |   | Pin name                            | Pin no. |
| DATA, INPUT, 0+                          | 01      | ← | D0+                                 | 01      |
| DATA, INPUT, 0-                          | 02      | ← | D0-                                 | 02      |
| DATA, INPUT, 1+                          | 03      | ← | D1+                                 | 03      |
| DATA, INPUT, 1-                          | 04      | ← | D1-                                 | 04      |
| DATA, INPUT, 2+                          | 05      | ← | D2+                                 | 05      |
| DATA, INPUT, 2-                          | 06      | ← | D2-                                 | 06      |
| DATA, INPUT, 3+                          | 07      | ← | D3+                                 | 07      |
| DATA, INPUT, 3-                          | 08      | ← | D3-                                 | 08      |

Continued...

\* Also requires 64MB add-on module (METEOR2-RAM/64).

Cabling details for the  
interface modes

# Matrox Meteor-II/Digital

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## Camera Interface Application Note

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Cabling details for the  
interface modes

### Cabling Requirements (continued)

#### Mode 1: Continuous

| METEOR-II/DIGITAL<br>(100-pin connector) |         | FLOVEL AD-210<br>(36-pin connector) |              |
|------------------------------------------|---------|-------------------------------------|--------------|
| Pin name                                 | Pin no. | Pin name                            | Pin no.      |
| DATA, INPUT, 4+                          | 09      | ←                                   | D4+ 09       |
| DATA, INPUT, 4-                          | 10      | ←                                   | D4- 10       |
| DATA, INPUT, 5+                          | 11      | ←                                   | D5+ 11       |
| DATA, INPUT, 5-                          | 12      | ←                                   | D5- 12       |
| DATA, INPUT, 6+                          | 13      | ←                                   | D6+ 13       |
| DATA, INPUT, 6-                          | 14      | ←                                   | D6- 14       |
| DATA, INPUT, 7+                          | 15      | ←                                   | D7+ 15       |
| DATA, INPUT, 7-                          | 16      | ←                                   | D7- 16       |
| DATA, INPUT, 8+                          | 17      | ←                                   | D8+ 17       |
| DATA, INPUT, 8-                          | 18      | ←                                   | D8- 18       |
| DATA, INPUT, 9+                          | 19      | ←                                   | D9+ 19       |
| DATA, INPUT, 9-                          | 20      | ←                                   | D9- 20       |
| VSYNC, INPUT, +                          | 35      | ←                                   | VD+ 21       |
| VSYNC, INPUT, -                          | 36      | ←                                   | VD- 22       |
| HSYNC, INPUT, +                          | 33      | ←                                   | HD+ 23       |
| HSYNC, INPUT, -                          | 34      | ←                                   | HD- 24       |
| CLOCK, INPUT, +                          | 39      | ←                                   | CLK+ 25      |
| CLOCK, INPUT, -                          | 40      | ←                                   | CLK- 26      |
| USER, INPUT, 0+                          | 41      | ←                                   | FLD 27       |
| CAM. CTRL BIT0, OUT, TTL                 | 49      | →                                   | DRAFT 28     |
| GROUND                                   | 50      | --                                  | GND 32       |
| GROUND                                   | 50      | --                                  | GND 30       |
| METEOR-II/DIGITAL<br>(100-pin connector) |         | FLOVEL AD-210<br>(12-pin connector) |              |
| Pin name                                 | Pin no. | Pin name                            | Pin no.      |
| EXPOSURE1, OUTPUT, TTL                   | 87**    | →                                   | TRIG IN 04** |
| GROUND                                   | 50**    | --                                  | GND 05**     |

\*\* This connection is not required for this mode, how ever allows this cable to be used with both modes.

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## Camera Interface Application Note

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Cabling details for the  
interface modes

#### Mode 2: Asynchronous Reset (pulse width control)

- **Cable:** DBHD100-TO-OPEN (open ended) cable required for video, synchronization and control signals.
- **External trigger:** External trigger source should be connected to the Opto-coupled trigger input (pin 7 for the OPTO TRIG+ and pin 2 for the OPTO TRIG-) of the secondary bracket.
- **Connection:** Connections between the 36-pin connector of the camera and the 100-pin connector of the Matrox Meteor-II/Digital are as *Mode 1: Continuous*. Connections between the 12-pin connector of the camera and the 100-pin connector of the Matrox Meteor-II/Digital are as follows:

METEOR-II/DIGITAL  
(100-pin connector)  
*Pin name*

*Pin no.*

FLOVEL AD-210  
(12-pin connector)  
*Pin name*

*Pin no.*

EXPOSURE1, OUTPUT, TTL

87

→

TRIG IN

04

GROUND

50

--

GND

05

\* Also requires 64MB add-on module (METEOR2-RAM/64).

The DCF(s) mentioned in this application note can be found on the MIL 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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