

Matrox Meteor-II/Digital

Camera Interface Application Note

DALSA CA-D8-0512W

March 26, 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

- $512 \times 512 \times 8\text{-bit}$ @ 77 fps.
- Single tap LVDS digital video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 25 MHz pixel clock rate.

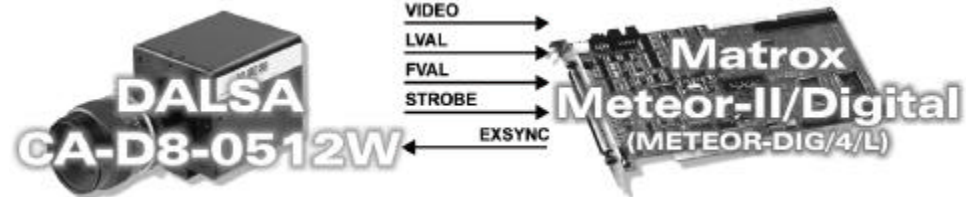
Interface Modes

- Continuous
- Trigger

Camera Interface Briefs

Mode 1: Continuous

- $512 \times 512 \times 8\text{-bit}$ @ 77 fps.
- Single tap LVDS digital video.
- Progressive scan.
- Matrox Meteor-II/Digital sending periodic EXPOSURE1 (EXSYNC) signal to camera to initiate frame readout and control exposure time.
- Matrox Meteor-II/Digital receiving HSYNC (LVAL), VSYNC (FVAL), PIXEL CLOCK (STROBE @ 25 MHz) and video signals from camera.
- DCF used: [MD8512WC.DCF](#)



Mode 2: Trigger

- Up to $512 \times 512 \times 8\text{-bit}$.
- Single tap LVDS digital video.
- Progressive scan.
- Matrox Meteor-II/Digital receiving TTL external trigger signal.
- Matrox Meteor-II/Digital sending EXPOSURE1 (EXSYNC) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Digital receiving HSYNC (LVAL), VSYNC (FVAL), PIXEL CLOCK (STROBE @ 25 MHz) and video signals from camera.

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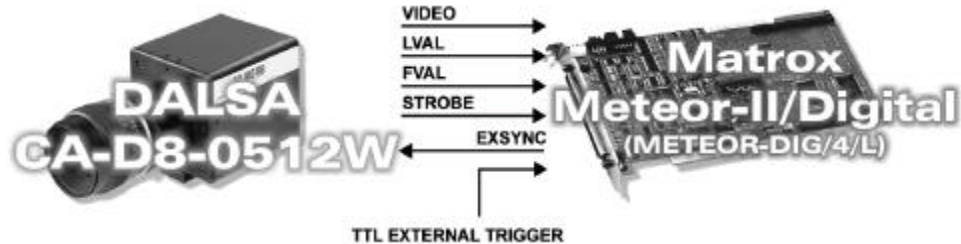
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Basics about the
interface modes

Camera Interface Briefs (continued)

Mode 2: Trigger

- DCF used: [MD8512WA.DCF](#)



Specifics about the
interface modes

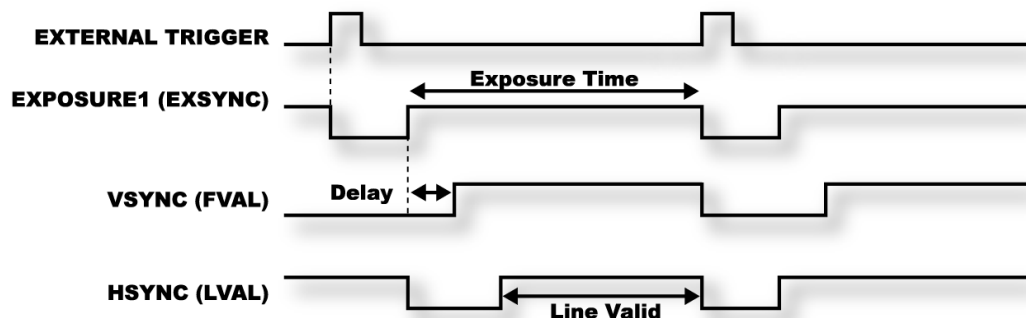
Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** The frame rate is determined by the frequency of the EXPOSURE1 (EXSYNC) signal. Matrox Meteor-II/Digital receives the continuous video from the camera at 77 frames per second.
- **Exposure time:** The width of the EXPOSURE1 (EXSYNC) signal is the exposure time. The default exposure time is equal to **1.8 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.

Mode 2: Trigger

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal.
- **Exposure time:** The low level (pulse period) of the EXPOSURE1 (EXSYNC) signal is the exposure time. The default exposure time is equal to **515.2 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.
- **Timing diagram:**



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Cabling details for the
interface modes

Cabling Requirements

Mode 1: Continuous

- **Cable:** DBHD100-TO-OPEN (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 25-pin connector (**OS1**) of the camera and the 100-pin connector of the Matrox Meteor-II/Digital are as follows:

METEOR2-DIG/4/L (100-pin connector)			DALSA CA-D8-0512W (25-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
DATA, INPUT, 0+	01	←	D0 (LSB)	08
DATA, INPUT, 0-	02	←	D0B	21
DATA, INPUT, 1+	03	←	D1	07
DATA, INPUT, 1-	04	←	D1B	20
DATA, INPUT, 2+	05	←	D2	06
DATA, INPUT, 2-	06	←	D2B	19
DATA, INPUT, 3+	07	←	D3	05
DATA, INPUT, 3-	08	←	D3B	18
DATA, INPUT, 4+	09	←	D4	04
DATA, INPUT, 4-	10	←	D4B	17
DATA, INPUT, 5+	11	←	D5	03
DATA, INPUT, 5-	12	←	D5B	16
DATA, INPUT, 6+	13	←	D6	02
DATA, INPUT, 6-	14	←	D6B	15
DATA, INPUT, 7+	15	←	D7	01
DATA, INPUT, 7-	16	←	D7B	14
HSYNC, INPUT, +	33	←	LVAL	10
HSYNC, INPUT, -	34	←	LVALB	23
VSNC, INPUT, +	35	←	FVAL	11
VSNC, INPUT, -	36	←	FVALB	24
CLOCK, INPUT, +	39	←	STROBE	09
CLOCK, INPUT, -	40	←	STROBEB	22

- **Connection:** Connections between the 15-pin connector of the camera and the 100-pin connector of the Matrox Meteor-II/Digital are as follows:

METEOR2-DIG/4/L (100-pin connector)			DALSA CA-D8-0512W (15-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
EXPOSURE1, OUTPUT, +	95	→	EXSYNC	12
EXPOSURE1, OUTPUT, -	96	→	EXSYNCB	04
EXPOSURE2, OUTPUT, +	97	→	PRIN	05
EXPOSURE2, OUTPUT, -	98	→	PRINB	13

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Cabling details for the
interface modes

Cabling Requirements (continued)

Mode 1: Continuous

- **Connection:** Connections between the 25-pin connector of the camera and Power Supply:

DALSA CA-D8-0512W
(25-pin connector)

POWER SUPPLY
Pin name

Pin name	Pin no.		
+5V	02, 09	→	+5V
+15V	06	→	+15V
-5V	04	→	-5V
+5V	15	→	+5V
+15V	07	→	+15V
-5V	13	→	-5V
-15V	12	→	-15V
GROUND	01, 08, 10, 14	→	GROUND

NOTE: it is very important that all the GROUNDS of the camera be connected together to the POWER SUPPLY GROUND, and to the GROUND of the Matrox Meteor-II. Do not use the cable shield as a ground, always use the ground pin of the power supply.

Mode 2: Trigger

- **Cable:** DBHD100-TO-OPEN (open ended) cable required for video, synchronization and control signals.
- **External trigger:** TTL external trigger source should be connected to the pin 1 and 6 (TTL_TRIG/Ground) of the Matrox Meteor-II/Digital RS-232/Trigger Input secondary bracket.
- **Connection:** Connections between the 25/15-pin connector of the camera and the 100-pin connector of the Matrox Meteor-II/Digital are as Mode 1: *Continuous*.

The DCF(s) mentioned in this application note can be found on the MIL CD or our FTP site ([ftp.matrox.com](ftp://ftp.matrox.com)). The information furnished by Matrox Electronics System, Ltd. is believed to be accurate and reliable. Please verify all interface connections with camera documentation or manual. Contact your local sales representative or Matrox Sales office or Matrox Imaging Applications at 514-822-6061 for assistance.

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