

Matrox Meteor-II/Camera Link

Camera Interface Application Note

DALSA 2M30-SA (DS-22-02M30)

November 7, 2007

Basics about the camera

Camera Descriptions

- Effective Resolution: 1600 × 1200 × 10-bit @ 30 fps.
- Camera Link BASE interface (two taps).
- Progressive scan.
- Internal sync.
- Internal or external exposure control.
- 40 MHz pixel clock rate.

Interface Modes

- Continuous (free running)
- Pseudo-continuous (external integration)
- Asynchronous reset (external integration)

Camera Interface Briefs

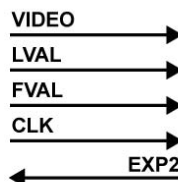
Mode 1: Continuous

- 1600 × 1200 × 10-bit @ 30 fps.
- Camera Link BASE interface (two taps).
- Matrox Meteor-II/Camera Link receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 40 MHz) and video signals from camera.
- DCF: [2M30SA_1600x1200_10bit2tapCon.DCF](#)



Mode 2: Pseudo-continuous

- 1600 × 1200 × 10-bit.
- Camera Link BASE interface (two taps).
- Matrox Meteor-II/Camera Link sending periodic EXPOSURE2 (CC1) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Camera Link receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 40 MHz) and video signals from camera.
- DCF: [2M30SA_1600x1200_10bit2tapPcon.DCF](#)



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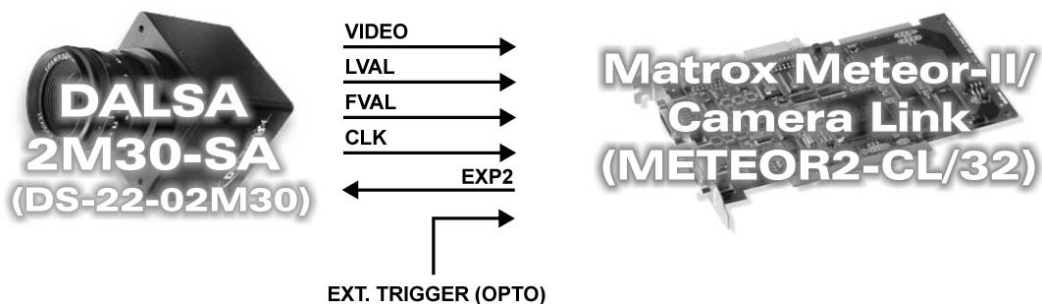
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Basics about the
interface modes

Camera Interface Briefs (continued)

Mode 3: Asynchronous reset

- 1600 × 1200 × 10-bit.
- Camera Link BASE interface (two taps).
- Progressive scan.
- Matrox Meteor-II/Camera Link receiving external OPTO trigger signal.
- Matrox Meteor-II/Camera Link sending periodic EXPOSURE2 (CC1) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Camera Link receiving LVAL, FVAL, PIXEL CLOCK (CLK @ 40 MHz) and video signals from camera.
- DCF used: [2M30SA_1600x1200_10bit2tapAsync.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** With this DCF, the Matrox Meteor-II/Camera Link receives the continuous video from the camera at 30 frames per second.
- **Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for more information.
- **Camera Control:** The camera mode is set using Windows HyperTerminal. Type **sem 1** at the prompt to set the mode. Refer to the camera manual for the serial command.

Mode 2: Pseudo-continuous

- **Frame Rate:** With this DCF, the Matrox Meteor-II/Camera Link receives the pseudo-continuous video from the camera at **17.23** frames per second. Frame rate is controlled by the frequency of the EXPOSURE2 (CC1) signal.

Continued...

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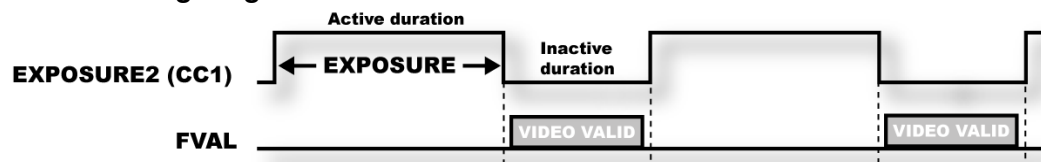
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Specifics about the
interface modes

Camera Interface Details (cont.)

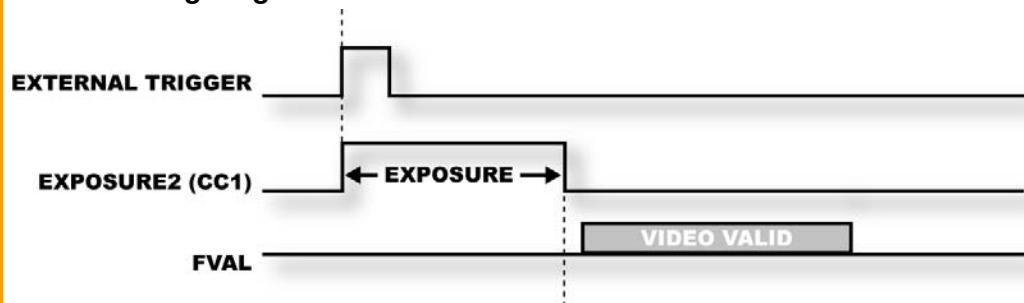
Mode 2: Pseudo-continuous

- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE2 (CC1) signal is the exposure time. The default exposure time in this DCF is **26 ms**. To modify the exposure time, change the **inactive** duration of Timer2 in Matrox Intellicam or with the MIL MdigControl() function. It is recommended that the **active** period of Timer2 be set to greater than one frame duration. Furthermore, any increase or decrease to the exposure time will respectively decrease or increase the frame rate.
- **Camera Control:** The camera mode is set using Windows HyperTerminal. Type **sem 4** (Smart EXSYNC mode) at the prompt to set the mode. Refer to the camera manual for the serial command.
- **Timing diagram:**



Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The period between external trigger signals must be larger than the total duration of the exposure time (pulse period of Timer2) plus the time for one frame.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE2 (CC1) signal is the exposure time. The default exposure time in this DCF is **26 ms**. To modify the exposure time, change the pulse duration of Timer2 in Matrox Intellicam or with the MIL MdigControl() function. Refer to the respective manual for more information.
- **Camera Control:** Refer to *Mode 2: Pseudo-continuous*.
- **Timing diagram:**



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*Cabling details for the
interface modes*

Cabling Requirements

Mode 1 and 2: Continuous and Pseudo-continuous

- **Cable and Connection:** Standard Camera Link cable.

Mode 2: Asynchronous reset

- **Cable and Connection:** Standard Camera Link.
- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 7 and 2) on the Expanded I/O adapter bracket.

EXPANDED I/O BRACKET

(9-pin connector)

				External Trigger Source	
OPTOTRIG +	07	←	SIGNAL	--	
OPTOTRIG -	02	←	GROUND	--	

The DCF(s) mentioned in this application note can be found on our FTP site ([ftp.matrox.com/pub/imaging/](ftp://ftp.matrox.com/pub/imaging/)). 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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