

Matrox Meteor-II/Multi-Channel Camera Interface Application Note

Crevis MV-BV20A

April 16, 2010

*Basics about the
camera*

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

*Basics about the
interface modes*

Camera Descriptions

- Effective resolution: $648 \times 494 \times 8\text{-bit}$ @ 60 fps.
- Single channel analog video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 24.5454 MHz pixel clock rate.

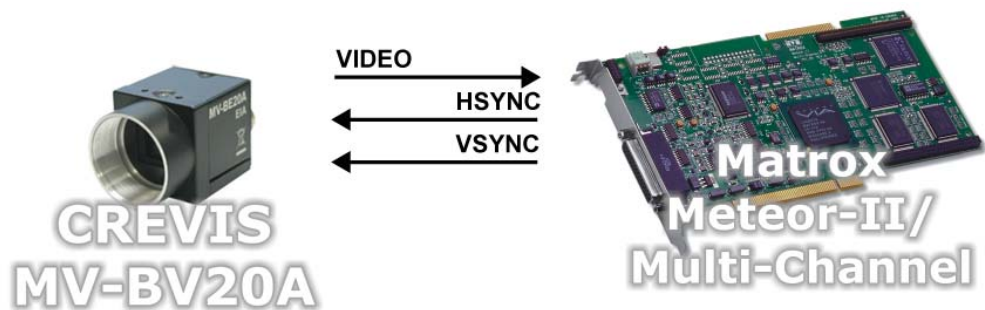
Interface Mode

- Continuous
- Pseudo-continuous (External Pulse Width Trigger)
- Asynchronous reset (External Pulse Width Trigger)

Camera Interface Briefs

Mode 1: Continuous

- $648 \times 494 \times 8\text{-bit}$ @ 60 fps.
- Progressive scan.
- Matrox Meteor-II/Multi-Channel sending horizontal and vertical sync to camera, and receiving the video signal from camera.
- DCF used: [MV-BV20A_648x494_8bitCon.DCF](#)



Mode 2: Pseudo-Continuous

- $648 \times 494 \times 8\text{-bit}$.
- Progressive scan.
- Matrox Meteor-II/Multi-Channel sending horizontal and vertical sync, and EXPOSURE1 (EXT. TRIGGER IN) signal to camera to initiate and control the exposure.
- Matrox Meteor-II/Multi-Channel receiving video from camera.
- DCF used: [MV-BV20A_648x494_8bitPcont.DCF](#)

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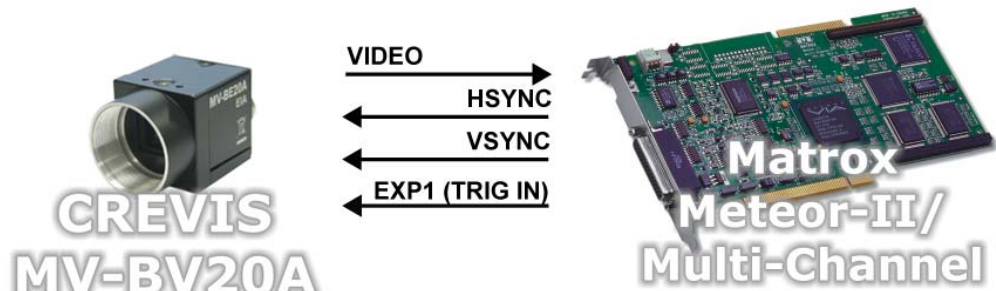
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Basics about the
interface modes

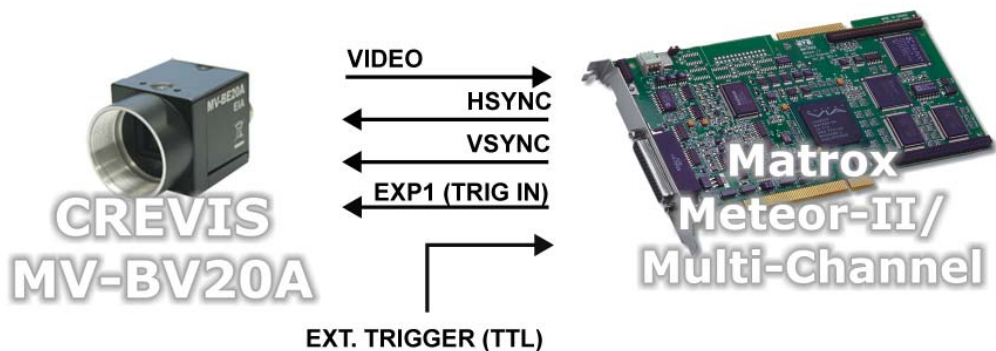
Camera Interface Briefs (cont.)

Mode 2: Pseudo-Continuous



Mode 3: Asynchronous reset

- 648 × 494 × 8-bit.
- Progressive scan.
- Matrox Meteor-II/Multi-Channel receiving external trigger signal.
- Matrox Meteor-II/Multi-Channel sending horizontal and vertical sync, and EXPOSURE1 (EXT. TRIGGER IN) signal to camera to initiate and control the exposure.
- Matrox Meteor-II/Multi-Channel receiving video from camera.
- DCF used: [MV-BV20A_648x494_8bitAsync.DCF](#)



Specifics about
the interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame Rate:** Matrox Meteor-II/Multi-Channel receives the continuous video from the camera at 60 frames per second.
- **Exposure time:** Exposure time is determined by the shutter setting. Refer to the camera manual for additional information.

Continued...

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Specifics about
the interface modes

Camera Interface Details (cont.)

Mode 1: Continuous

- **Camera Switch settings:** The DIP switches on the camera's rear are set as follows; refer to the camera manual for additional information.

1	2	3	4	5	6	7	8	9	10
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF

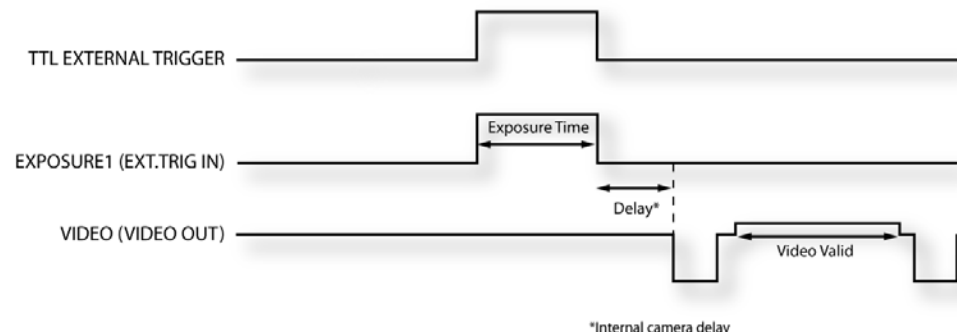
Mode 2: Pseudo-Continuous

- **Frame rate:** The frame rate is determined by the frequency of the EXPOSURE1 (EXT. TRIGGER IN) signal.
- **Exposure time:** The EXPOSURE1 (EXT. TRIGGER IN) active duration initiates and controls the exposure time. To modify the exposure time, change the TIMER1 active duration in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera Switch settings:** The DIP switches on the camera's rear are set as follows; refer to the camera manual for additional information.

1	2	3	4	5	6	7	8	9	10
OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF

Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The period between the external trigger signals must be larger than the frame readout period plus the exposure time.
- **Exposure time:** Same as in *Mode 2: Pseudo-continuous*.
- **Camera Configuration:** Same as in *Mode 2: Pseudo-continuous*.
- **Timings:**



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Cabling details for the
interface modes

Cabling Requirements

Modes 1: Continuous

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin HD-44 connectors of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4 (44-pin connector)			CREVIS MV-BV20A (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN	15	←	VIDEO OUT	04
GROUND	17	--	GROUND	03
V_SYNC	32	→	VD	07
H_SYNC	02	→	HD	06

Mode 2: Pseudo-Continuous

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin HD-44 connectors of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4 (44-pin connector)			CREVIS MV-BV20A (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN	15	←	VID1_IN	15
GROUND	17	--	GROUND	03
EXPOSURE1	38	→	TRIGGER IN	11
V_SYNC	32	→	VD	07
H_SYNC	02	→	HD	06

Mode 3: Asynchronous Reset

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections between the 12-pin connector of the camera and the 44-pin HD-44 connectors of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4 (44-pin connector)			CREVIS MV-BV20A (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID1_IN	15	←	VID1_IN	15
GROUND	17	--	GROUND	03
EXPOSURE1	38	→	TRIGGER IN	11
V_SYNC	32	→	VD	07
H_SYNC	02	→	HD	06

Continued...

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Cabling details for the
interface modes

Mode 3: Asynchronous Reset (cont.)

- **External trigger:** external trigger signal connected to the OptoCoupled Trigger input (pin 34, 35) of the DBHD44-TO-8BNC/O cable.

METEOR2-MC/4
(44-pin connector)

EXTERNAL TRIGGER SOURCE

<i>Pin name</i>	<i>Pin no.</i>		<i>Pin name</i>	<i>Pin no.</i>
OPTO TRIG+	34	←	SIGNAL	--
OPTO TRIG-	35	←	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.

Matrox Electronic Systems Ltd.

1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel: (514) 685-2630
Fax: (514) 822-6273

MET-CID-179

