

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

TOSHIBA TELI CS8560D

September 19, 2005

*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: $646 \times 494 \times 8\text{-bit}$ @ 120 fps.
- Single or dual channel analog video input.
- Interlaced or progressive scan.
- Internal or external sync and exposure control.
- 24.5454 MHz pixel clock rate.

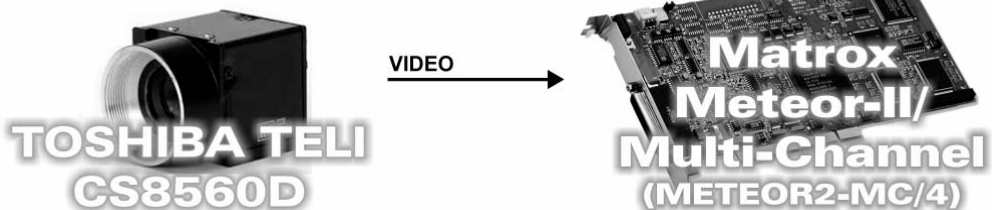
Interface Mode

- Continuous
- Asynchronous reset (Random Trigger Shutter)

Camera Interface Briefs

Mode 1: Continuous

- Up to $646 \times 494 \times 8\text{-bit}$ @ 60 fps.
- Single channel progressive scan.
- Matrox Meteor-II/Multi-Channel receiving video signals from camera.
- DCF used: [CS8560D__646x494_8bitCon.DCF](#) (Full scan, 60 FPS)
- DCF used: [CS8560D__646x227_8bitCon.DCF](#) ($\frac{1}{2}$ Partial scan, 120 FPS)
- DCF used: [CS8560D__646x81_8bitCon.DCF](#) ($\frac{1}{4}$ Partial scan, 240 FPS)



Mode 2: Asynchronous reset

- Up to $646 \times 494 \times 8\text{-bit}$.
- Single channel progressive scan.
- Matrox Meteor-II/Multi-Channel receiving external trigger signal.
- Matrox Meteor-II/Multi-Channel sending EXPOSURE1 (TRIG IN) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Multi-Channel receiving video signals from camera.
- DCF used: [CS8560D__646x494_8bitAsync.DCF](#) (Full scan)
- DCF used: [CS8560D__646x227_8bitAsync.DCF](#) ($\frac{1}{2}$ Partial scan)
- DCF used: [CS8560D__646x81_8bitAsync.DCF](#) ($\frac{1}{4}$ Partial scan)

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Camera Interface Application Note

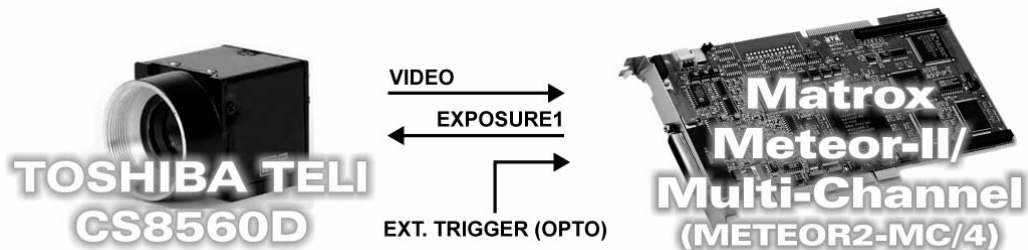
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Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Asynchronous reset

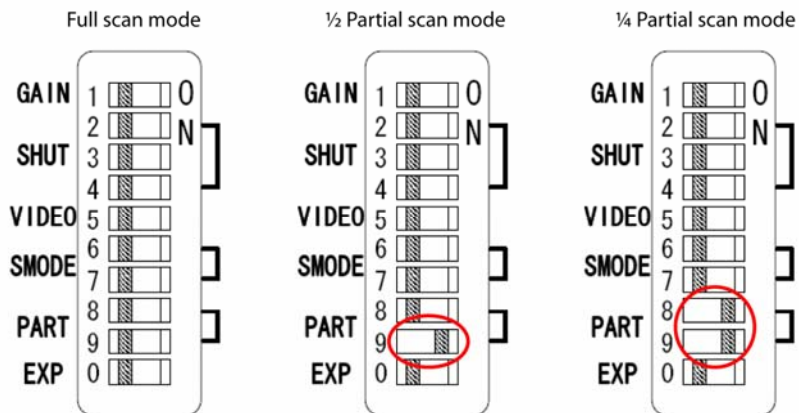


Specifics about the
interface modes

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** (full resolution).
- **Exposure time:** Exposure time is determined by the camera shutter setting. Refer to the camera manual for more information.
- **Camera settings:** External camera switch settings are as shown below. Refer to the camera manual for additional information.



Mode 2: Asynchronous reset

- **Frame Rate:** The frame rate is determined by the frequency of the external trigger signal and the exposure time period.
- **Exposure time:** The width (rising edge to falling edge) of the EXPOSURE1 (TRIG IN) signal equals the exposure time. The exposure time can be modified in the DCF using Matrox Intellicam or with the MIL digitizer control function **MdigControl()**. Refer to the appropriate manual or user guide for more information.

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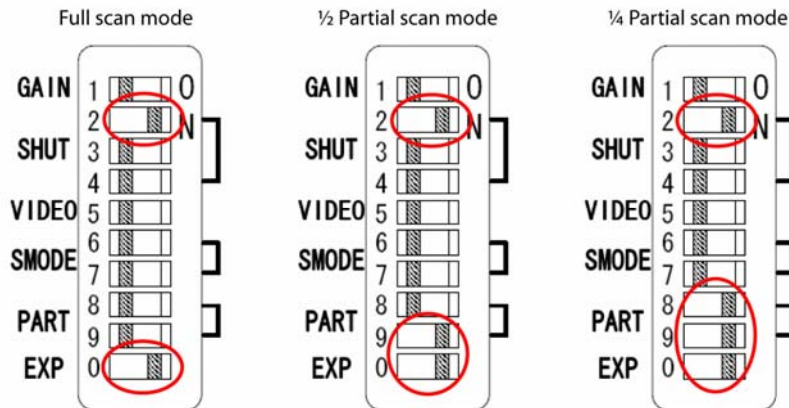
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Specifics about the
interface modes

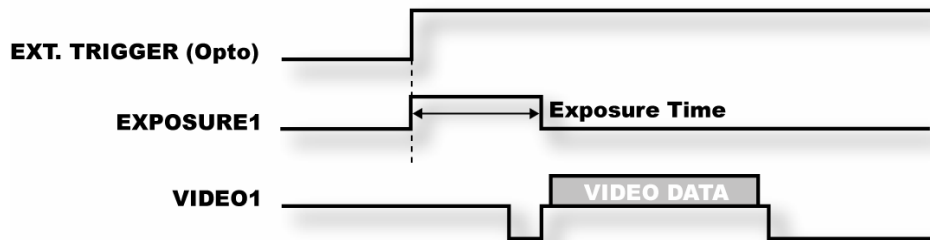
Camera Interface Details (cont.)

Mode 2: Asynchronous reset

- **Camera settings:** External camera switch settings are as shown below. Refer to the camera manual for additional information.



- **Timing diagram:**



Cabling details for the
interface modes

Cabling Requirements

Mode 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 (via the junction box) and the 44-pin connector of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4
(44-pin connector)

TELI CS8560D
(12-pin connector)

VID_IN1 (RED BNC)	15	←	VIDEO OUTPUT 1	04
GROUND	31	--	VIDEO GND	03

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Mode 2: Asynchronous Reset

- **Cable:** DBHD44-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **External trigger:** TTL external trigger source should be connected to the TTL Trigger input (pin 20) of the DBHD44-TO-8BNC/O cable.
- **Connection:** Connections between the 12-pin connector of the camera (via the junction box) and the 44-pin connector of the Matrox Meteor-II/Multi-Channel are as follows:

METEOR2-MC/4 (44-pin connector)			TELI CS8560D (12-pin connector)	
Pin name	Pin no.		Pin name	Pin no.
VID_IN1 (RED BNC)	15	←	VIDEO OUT	04
GROUND	31	--	VIDEO GND	03
EXP(1)	38	→	TRIG IN	11
GROUND	25	--	TRIG GND	08
METEOR2-MC/4 (44-pin connector)			EXTERNAL TRIGGER SOURCE	
Pin name	Pin no.		Pin name	Pin no.
OPTOTRIG-	34	←	--	--
OPTOTRIG+	35	←	--	--

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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