

Matrox Solios eA/XA

Camera Interface Application Note

HITACHI KP-FD30M

March 16, 2007

Basics about the camera

Camera Descriptions

- Effective resolution: 648×480 @ 60 fps.
- Analog RGB video output.
- Progressive scan.
- Internal or external sync.
- Internal or external exposure control.
- 24.5656 MHz pixel clock rate.

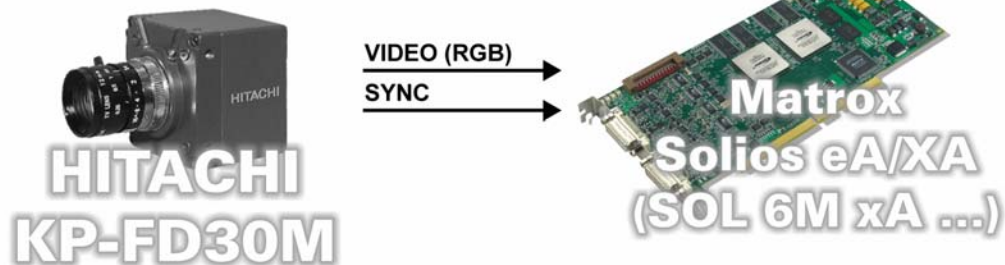
Interface Mode

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

Camera Interface Briefs

Mode 1: Continuous

- 648×480 @ 60 fps.
- Analog RGB video.
- Matrox Solios eA/XA receiving Sync and video signals from camera.
- DCF used: [KPFD30M_648x480Con.DCF](#)



Mode 2: Pseudo-continuous

- Up to $648 \times 480 \times 8$ -bit.
- Analog RGB video
- Matrox Solios eA/XA sending EXPOSURE1 (TRIG) signal to camera to initiate and control the exposure.
- Matrox Solios eA/XA receiving Sync and video signals from camera.
- DCF used: [KPFD30M_648x480Pcon.DCF](#)

Continued...

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

Basics about the interface modes

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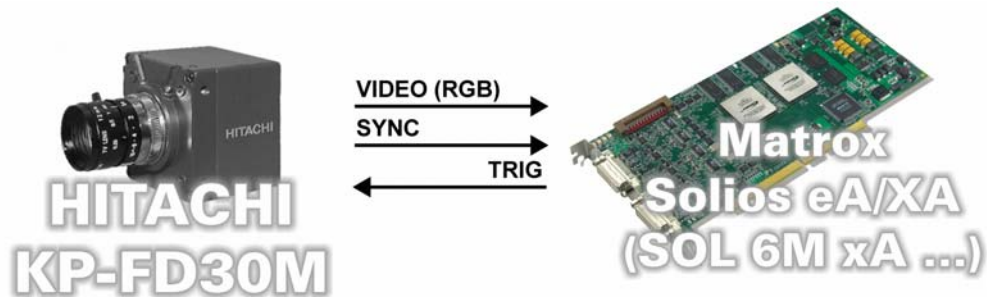
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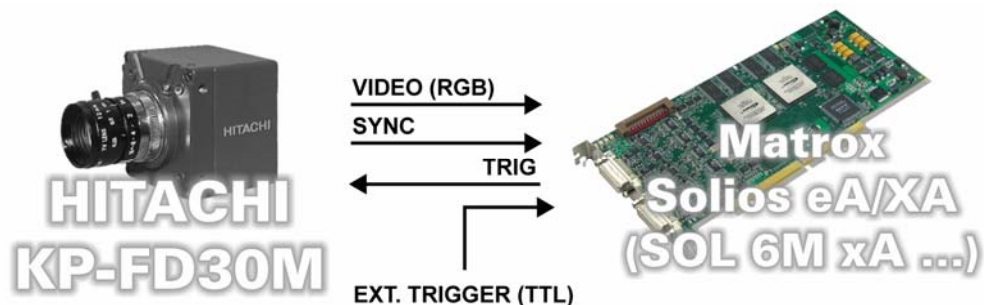
Camera Interface Briefs

Mode 2: Pseudo-continuous



Mode 3: Asynchronous reset

- Up to 648 × 480 × 8-bit.
- Analog RGB video
- Matrox Solios eA/XA receiving external trigger signal.
- Matrox Solios eA/XA sending EXPOSURE1 (TRIG) signal to camera to initiate and control the exposure.
- Matrox Solios eA/XA receiving Sync and video signals from camera.
- DCF used: [KPF30M_648x480Async.DCF](#)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Continuous

- **Frame rate:** Matrox Solios eA/XA receives the continuous video from the camera at 60 frames per second.
- **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 settings:** Use the on-screen display menu to set the camera's electronic shutter mode to OFF or VARIABLE.

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Specifics about the
interface modes

Camera Interface Details

Mode 2: Pseudo-continuous

- **Frame rate:** Matrox Solios eA/XA receives the continuous video from the camera at 60 frames per second.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (TRIG) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera settings:** Use the on-screen display menu to set the camera's electronic shutter mode to OFF or VARIABLE.

Mode 3: Asynchronous Reset

- **Frame rate:** The frame rate is determined by the frequency of the external trigger signal. The maximum possible frame rate is dependent on the exposure time as well as the camera's frame readout period.
- **Exposure time:** The width (falling edge to rising edge) of the EXPOSURE1 (TRIG) signal is the exposure time, which can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information.
- **Camera settings:** Use the on-screen display menu to set the camera's electronic shutter mode to EXTERNAL TRIGGER and trigger mode to ONE TRIG.

Cabling Requirements

Modes 1 and 2: Continuous/ Pseudo-continuous

- **Cable:** DVI-TO-8BNC/O (open ended) cable required for video and synchronization signals.
- **Connection:** Connections between the DB-15 connector (RGB terminal) of the camera and the DVI connector of the Matrox Solios eA/XA are as follows:

HITACHI KP-FD30M (15-pin connector)			Matrox Solios eA/XA (DVI connector 0)	
Pin name	Pin no.		Pin name	Pin no.
R (RED)	01	→	CH0_INPUTA	C1
GND	06	--	--	--
G (GREEN)*	02	→	CH1_INPUTA	C2
GND	07	--	--	--
B (BLUE)	03	→	CH2_INPUTA	C3
GND	08	--	--	--
TRIG	10**	←	CH0_EXPOSURE	23**

* SYNC on Green

** This connection is not necessary for this mode however allows the same cable to be used with both modes.

Cabling details for the
interface modes

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Cabling details for the
interface modes

Cabling Requirements (cont.)

Mode 3: Asynchronous reset

- **Cable:** DVI-TO-8BNC/O (open ended) cable required for video, synchronization and control signals.
- **Connection:** Connections are as in Mode 1: Continuous including the following:

H/ TRIGGER SOURCE		Matrox Solios eA/XA (DVI connector 0)	
Pin name	Pin no.	Pin name	Pin no.
H/W TRIG Cable	-- →	CH0_TRIGTTL	14
GND	--	DIGITALGROUND	15

The DCF(s) mentioned in this application note can be found on our FTP site (<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., 2007-2011.

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SOL-CID-052

