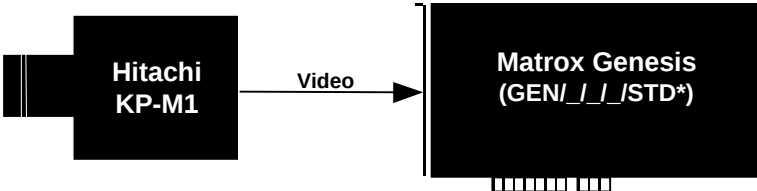
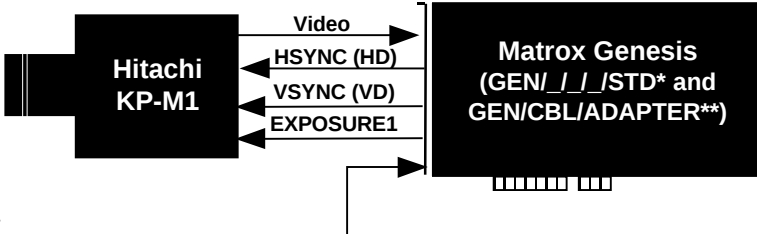


Application Note:

Interfacing non-standard cameras to Matrox Genesis

Hitachi Denshi KP-M1

May 23, 1997

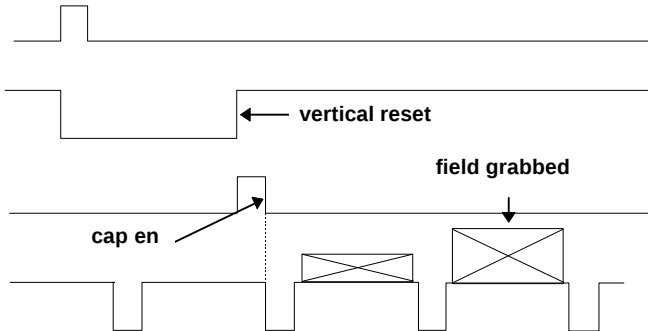
Camera Descriptions	• 768 x 572 x 8-bit (CCIR). • Analog video output. • Interlaced. • Internal or external sync. • Internal or external exposure control. • Pixel Clock: 14.8 MHz
Interface Modes	• Continuous, Integration mode
Camera Interface Briefs	Mode 1: Continuous mode  * Matrox Genesis Main Board with Grab Module • 768 x 572 x 8-bit (CCIR). • Analog video output. • Internal (composite) sync. • Interlaced. • Matrox Genesis receiving continuous video from camera. • DCF can support up to four cameras simultaneously. • DCF used: KPM1_C.DCF Mode 2 : Integration mode  TTL external trigger *Matrox Genesis Main Board with Grab Module ** Matrox Digital Cable Adapter Module • 768 x 287 x 8-bit (CCIR). • Analog video output. • Internal (composite) sync. • Non-interlaced. • Matrox Genesis receiving TTL external trigger. • Matrox Genesis sending TTL HSYNC, TTL VSYNC, TTL EXPOSURE1 to camera; TTL EXPOSURE1 sent to camera to initiate frame exposure, delayed by 1 field. • Matrox Genesis receiving video signal from camera. • DCF can support up to four cameras simultaneously. • DCF used: KPM1_INT.DCF
Camera Interface Details	Mode 2 : Integration mode • The frame scan rate is determined by the TTL external trigger period. • The external trigger is input on the Matrox Genesis via the analog video input connector trigger pin.

Application Note:

Interfacing non-standard cameras to Matrox Genesis

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Camera Interface Details (continued)	- Once this external trigger is received, the Matrox Genesis generates a negative-going pulse on EXPOSURE1 which in turn initiates the camera exposure. - The exposure time is equal to the period between the falling edge to the rising edge of EXPOSURE1 pulse. - Note, on the falling edge of the EXPOSURE2 signal, there will be a delay of one full field before a field is grabbed by the Matrox Genesis. TTL External Trigger EXPOSURE1 EXPOSURE2 Video 																														
Cabling Requirements	Mode 1: Continuous mode - IMG-7W2-TO-5BNC cable required for video output of camera. Mode 2 : Integration mode - IMG-7W2-TO-5BNC cable required for TTL external trigger source and video output of camera. - TTL external trigger source should be connected to the TTL trigger input of the IMG-7W2-TO-5BNC cable. - The connections between the Digital Cable Adapter board and the 12-pin connector of the camera are as follows: <table><tr><th colspan="2">Digital Cable Adapter Board (GEN/CBL/OPEN connector)</th><th></th><th colspan="2">Hitachi KP-M1 (12-pin connector)</th></tr><tr><th>Pin name</th><th>Pin no</th><th></th><th>Pin name</th><th>Pin no.</th></tr><tr><td>HSYNC, OUTPUT, TTL</td><td>62</td><td>→</td><td>HD</td><td>6</td></tr><tr><td>VSYNC, OUTPUT, TTL</td><td>26</td><td>→</td><td>VD</td><td>7</td></tr><tr><td>EXPOSURE0, OUTPUT, TTL</td><td>24</td><td>→</td><td>--</td><td>9</td></tr><tr><td>GROUND</td><td>25, 60</td><td></td><td>GROUND</td><td>1, 3, 5, 10, 12</td></tr></table>	Digital Cable Adapter Board (GEN/CBL/OPEN connector)			Hitachi KP-M1 (12-pin connector)		Pin name	Pin no		Pin name	Pin no.	HSYNC, OUTPUT, TTL	62	→	HD	6	VSYNC, OUTPUT, TTL	26	→	VD	7	EXPOSURE0, OUTPUT, TTL	24	→	--	9	GROUND	25, 60		GROUND	1, 3, 5, 10, 12
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The DCF(s) mentioned in this application note can be found on the MIL and Native Library CD, or our FTP site ([ftp.matrox.com](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 Matrox for more information, if necessary.

Corporate
Headquarters:
Canada and U.S.A.
Matrox Electronic
Systems Ltd.
1055 St.Regis Blvd.
Dorval, Quebec, Canada
H9P 2T4
Tel: (514) 685-7230
Fax: (514) 822-6273

matrox
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