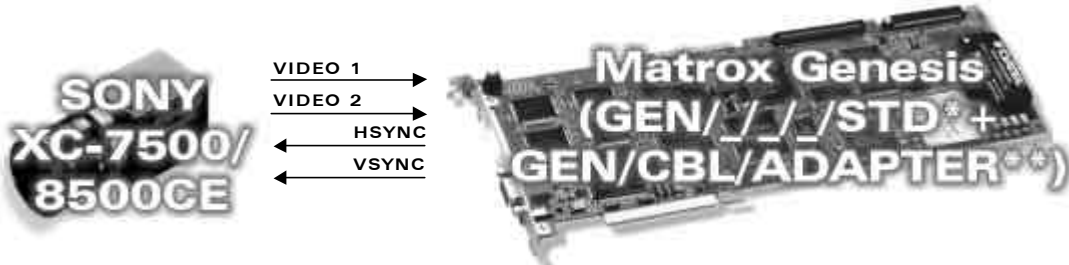
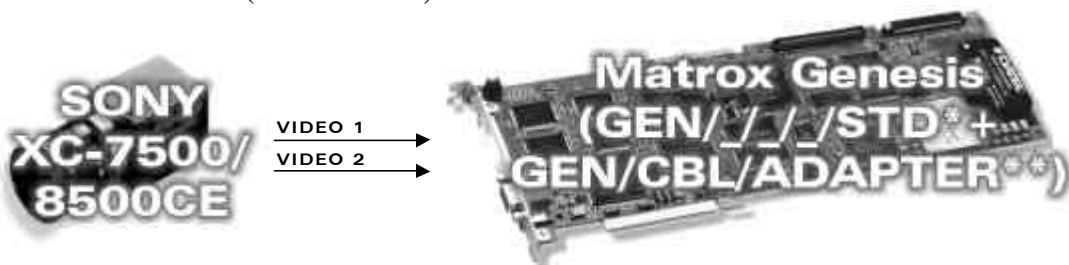


# Application Note:

## Interfacing non-standard cameras to Matrox Genesis

SONY XC-7500/8500CE

February 28, 2000

<b>Camera Descriptions</b>	<ul style="list-style-type: none"> <li>• 659 x 494 (7500) and 782 x 582 (8500CE).</li> <li>• Two channel analog video output.</li> <li>• Interlaced or progressive scan.</li> <li>• Internal (composite) or external sync.</li> <li>• Internal or external exposure control.</li> </ul>
<b>Interface modes</b>	<ul style="list-style-type: none"> <li>• Continuous (master or slave), Asynchronous reset</li> </ul>
<b>Camera Interface Briefs</b>	<p><b>Mode 1: Continuous (Genesis Master)</b></p>  <ul style="list-style-type: none"> <li>• 644 x 486 @ 60 fps (7500)</li> <li>• 763 x 576 @ 50 fps (8500CE).</li> <li>• Two channel analog video.</li> <li>• Progressive scan.</li> <li>• Matrox Genesis sending HSYNC and VSYNC signals to camera.</li> <li>• Matrox Genesis receiving video signals from camera.</li> <li>• DCF can support two cameras simultaneously.</li> <li>• DCF used: <a href="#">7500BM.DCF</a></li> <li>• DCF used: <a href="#">8500BM.DCF</a></li> </ul> <p><b>Mode 2: Continuous (Genesis Slave)</b></p>  <ul style="list-style-type: none"> <li>• 644 x 484 @ 60 fps (7500)</li> <li>• 763 x 574 @ 50 fps (8500CE).</li> <li>• Two channel analog video.</li> <li>• Progressive scan.</li> <li>• Matrox Genesis receiving video signals from camera.</li> <li>• DCF used: <a href="#">7500B.DCF</a></li> <li>• DCF used: <a href="#">8500B.DCF</a></li> </ul> <p>* Matrox Genesis main board with grab module  ** Matrox cable adapter module</p>

# Application Note:

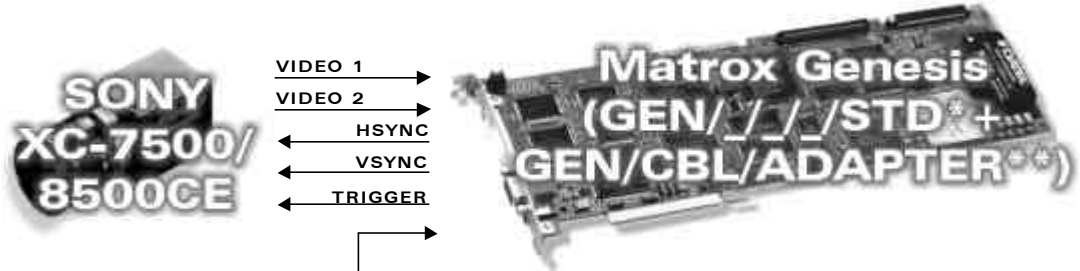
## Interfacing non-standard cameras to Matrox Genesis

SONY XC-7500/8500CE

February 28, 2000

### Camera Interface Briefs (continued)

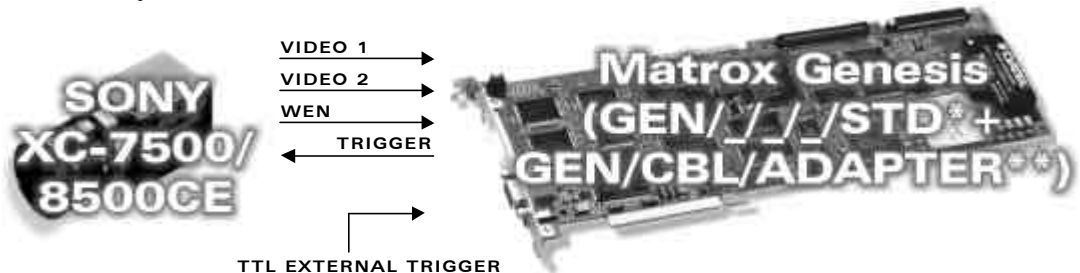
#### Mode 3 : Asynchronous Reset (S-DONPISHA)



- 644 x 486 (7500)    TTL EXTERNAL TRIGGER
- 763 x 576 (8500CE).
- Two channel analog video.
- Progressive scan.
- External exposure control (S-DONPISHA).
- Matrox Genesis receiving TTL external trigger.
- Matrox Genesis sending HSYNC, VSYNC, and EXPOSURE1 (TRIGGER) signals to camera; the EXPOSURE1 (TRIGGER) signal initiates exposure.
- Matrox Genesis receiving video signals from camera.
- DCF can support two cameras simultaneously.
- DCF used: [7500BAEM.DCF](#)
- DCF used: [8500BAEM.DCF](#)

\* Matrox Genesis main board with grab module  
 \*\* Matrox cable adapter module

#### Mode 4 : Asynchronous Reset (E-DONPISHA)



- 644 x 242 (7500)
- 763 x 576 (8500CE).
- Two channel analog video.
- Progressive scan.
- External exposure control (E-DONPISHA).
- Matrox Genesis receiving TTL external trigger and WEN pulse.
- Matrox Genesis sending HSYNC, VSYNC, and EXPOSURE1 (TRIGGER) signals to camera; the EXPOSURE1 (TRIGGER) signal initiates exposure.
- Matrox Genesis receiving video signals from camera.
- DCF can support two cameras simultaneously.
- DCF used: [7500\\_ED.DCF](#)
- DCF used: [8500\\_ED.DCF](#)

\* Matrox Genesis main board with grab module  
 \*\* Matrox cable adapter module

# Application Note:

## Interfacing non-standard cameras to Matrox Genesis

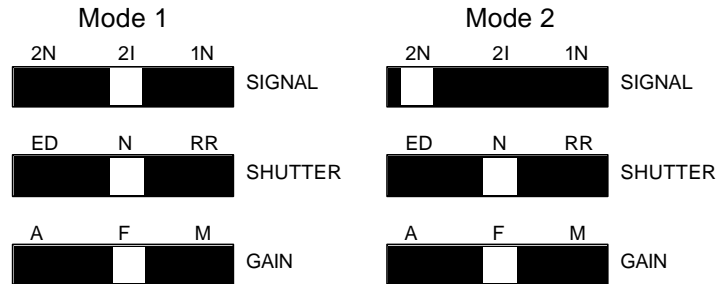
SONY XC-7500/8500CE

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### Camera Interface Details

#### Mode 1 and 2: Continuous (Genesis Master and Slave)

External Switch Settings: switches located on rear panel of camera should be set as follows:



#### Mode 3: Asynchronous Reset (S-DONPISHA)

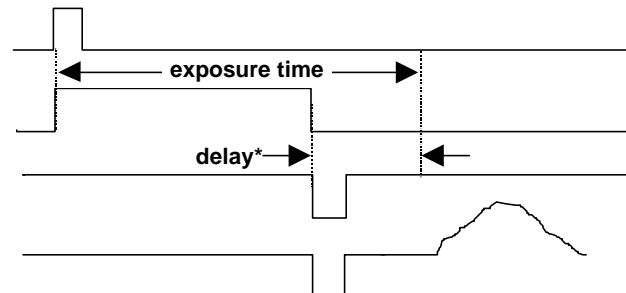
- The frame scan rate is determined by the period of the TTL external trigger.
- The external trigger is input on the Matrox Genesis via the video input connector trigger input.
- Once this external trigger is received, the Matrox Genesis generates a trigger pulse EXPOSURE1 (TRIGGER), which in turn initiates the camera exposure. A single vertical pulse (Ext. VD) is also generated by the Matrox Genesis to initiate the camera's CCD readout.
- The exposure time is the EXPOSURE1 (TRIGGER) signal period plus a fixed camera delay (internal) of 10.5H for the 7500 and 15.5H for the 8500CE.
- The default exposure time for this DCF is **65 ms** for the 7500 and **66.5 ms** for the 8500CE.

TTL external trigger

EXPOSURE1 (Trigger)

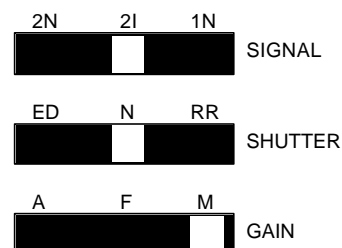
VSUNC (Ext. VD)

Video (1 frame)



\*10H for 7500, 15.5H for 8500

External Switch Settings: switches located on rear panel of camera should be set as follows:



# Application Note:

## Interfacing non-standard cameras to Matrox Genesis

SONY XC-7500/8500CE

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<div>Camera Interface Details (continued)</div>	<div>Mode 4: Asynchronous Reset (E-DONPISHA)</div> <div><ul style="list-style-type: none"><li>External Switch Settings: switches located on rear panel of camera should be set as follows:</li></ul><div><div><div>2N2I1N</div><div></div><div>SIGNAL</div></div><div><div>EDNRR</div><div></div><div>SHUTTER</div></div><div><div>AFM</div><div>OR</div><div>GAIN</div></div></div><ul style="list-style-type: none"><li>Internal Switch Settings: switches located on SG-235 board should be set as follows:<div>S4-1, -2 OFF</div><div>S6-1, -2, -7, -9, -0 ON, all others OFF (shutter speed)</div><div>S7-3 ON, all others OFF</div><div>For information on internal switch locations and settings, refer to the camera manual.</div></li></ul></div>
<div>Cabling Requirements</div>	<div>Mode 1: Continuous (Genesis Master)</div> <div><ul style="list-style-type: none"><li>IMG-7W2-TO-5BNC and DBH68-TO-OPEN cables required for video output of camera and sync signals.</li><li>Video input of IMG-7W2-TO-5BNC cable should be connected to video out BNC connector of camera:<div><div>Video Output 1 → Green Cable</div><div>Video Output 2 → Red Cable</div></div></li><li>The connections between the Digital Cable Adapter board and the 12-pin lens connector of the camera are as follows:</li></ul><div><div><div>Matrox Genesis (68-pin connector)</div><div><div><div>Pin name</div><div>Pin no.</div></div><div><div>HSYNC, OUTPUT, TTL</div><div>62</div><div>®</div></div><div><div>GROUND</div><div>60</div><div></div></div><div><div>VSYNC, OUTPUT, TTL</div><div>26</div><div>®</div></div><div><div>GROUND</div><div>28</div><div></div></div></div><div><div>SONY XC-7500/8500CE (12-pin lens connector)</div><div><div><div>Pin name</div><div>Pin no.</div></div><div><div>HD INPUT (signal)</div><div>6</div></div><div><div>HD INPUT (ground)</div><div>5</div></div><div><div>VD INPUT (signal)</div><div>7</div></div><div><div>VD INPUT (ground)</div><div>12</div></div></div></div></div><div>Mode 2: Continuous Mode (Genesis Slave)</div><div><ul style="list-style-type: none"><li>IMG-7W2-TO-5BNC required for video output of camera.</li><li>Video input of IMG-7W2-TO-5BNC cable should be connected to video out BNC connector of camera:<div><div>Video Output 1 → Green Cable</div><div>Video Output 1 → Red Cable</div></div></li></ul></div></div></div>

# Application Note:

## Interfacing non-standard cameras to Matrox Genesis

M A T R O X  
G E N E S I S

SONY XC-7500/8500CE

February 28, 2000

<b>Cabling Requirements</b>	<b>Mode 3: Asynchronous Reset (S-DONPISHA)</b>			
	<ul style="list-style-type: none"> <li>• IMG-7W2-TO-5BNC and DBH68-TO-OPEN cables required for video output of camera, external trigger, sync and exposure signals.</li> <li>• TTL external trigger source should be connected to the TTL trigger input of the IMG-7W2-TO-5BNC cable.</li> <li>• Video input of IMG-7W2-TO-5BNC cable should be connected to video out BNC connector of camera: <ul style="list-style-type: none"> <li>Video Output 1 → Green Cable</li> <li>Video Output 2 → Red Cable</li> </ul> </li> <li>• The connections between the Digital Cable Adapter board and the 6-pin/12-pin lens connector of the camera are as follows:</li> </ul>			
	<b>Matrox Genesis (68-pin connector)</b>		<b>SONY XC-7500/8500CE (6-pin lens connector)</b>	
	<i>Pin name</i>	<i>Pin no.</i>	<i>Pin name</i>	<i>Pin no.</i>
	EXPOSURE1, OUTPUT, TTL	24 ®	EXT. TRIGGER INPUT	2
	GROUND	25	GROUND	3
	<b>Matrox Genesis (68-pin connector)</b>		<b>SONY XC-7500/8500 CE (12-pin lens connector)</b>	
	<i>Pin name</i>	<i>Pin no.</i>	<i>Pin name</i>	<i>Pin no.</i>
	HSYNC, OUTPUT, TTL	62 ®	HD INPUT (signal)	6
	GROUND	60	HD INPUT (ground)	5
	VSYNC, OUTPUT, TTL	26 ®	VD INPUT (signal)	7
	GROUND	28	VD INPUT (ground)	12
<b>Mode 4: Asynchronous Reset Mode (E-DONPISHA)</b>				
<ul style="list-style-type: none"> <li>• The connections between the Digital Cable Adapter board and the 6-pin/12-pin lens connector of the camera are the same (except that HSYNC and VSYNC are not required) as in Mode 3: <i>Asynchronous Reset Mode (S-DONPISHA)</i> and include the following additional connection:</li> </ul>				
<b>Matrox Genesis (68-pin connector)</b>		<b>SONY XC-7500/8500 CE (6-pin lens connector)</b>		
<i>Pin name</i>	<i>Pin no.</i>	<i>Pin name</i>	<i>Pin no.</i>	
TRIGGER, INPUT, TTL	67 ↯	WEN	4	

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:ftp.matrox.com)). The information furnished by Matrox Electronic 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 Imaging Applications at 514-822-6061 for assistance.

### Corporate headquarters: Offices:

Canada and U.S.A.	Europe, Middle East & Africa	France	Germany	Asia Pacific
Matrox Electronic Systems Ltd. 1055 St. Regis Blvd. Dorval, Quebec H9P 2T4 Canada Tel: (514) 685-2630 Fax: (514) 822-6273	Matrox VITE Limited Sefton Park Stoke Poges Buckinghamshire SL2 4JS U.K. Tel: 01753 665500 Fax: 01753 665599	Matrox France SARL 2, rue de la Couture, Silic 225 94528 Rungis Cedex Tel: (0) 1 45-60-62-00 Fax: (0) 1 45-60-62-05	Matrox Electronic Systems GmbH Inselkammerstr. 8 D-82008 Unterhaching Germany Tel: 089/614 4740 Fax: 089/614 9743	Matrox Asian Liaison Office Rm. 1901, 19/F, Workington Tower 78 Bonham Strand E. Sheung Wan Hong Kong Tel: 852.2877.5387 Fax: 852.2537.9530

