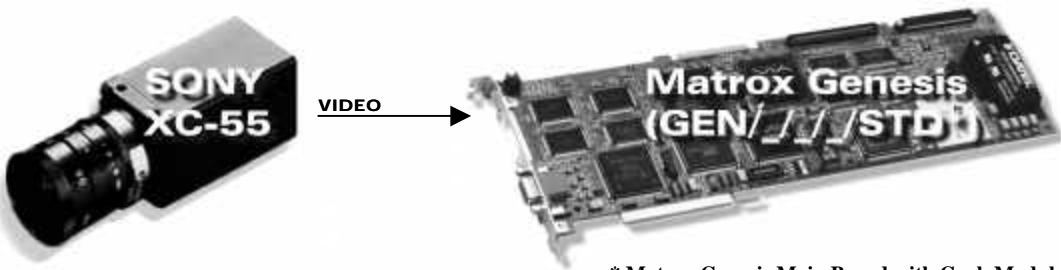
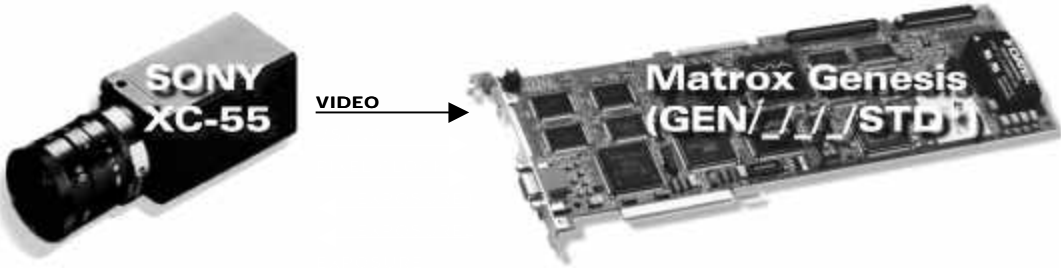


Application Note:

Interfacing non-standard cameras to Matrox Genesis

SONY XC-55

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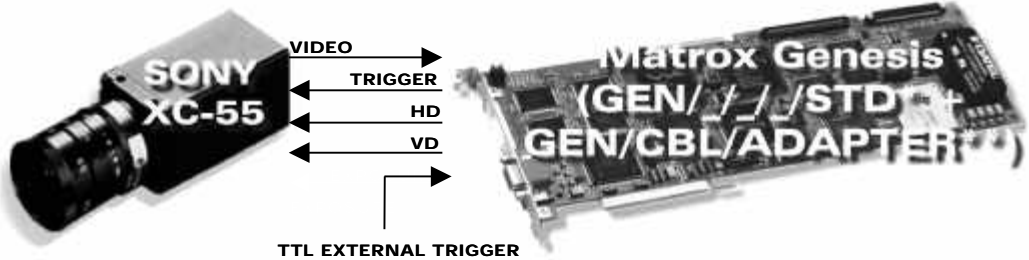
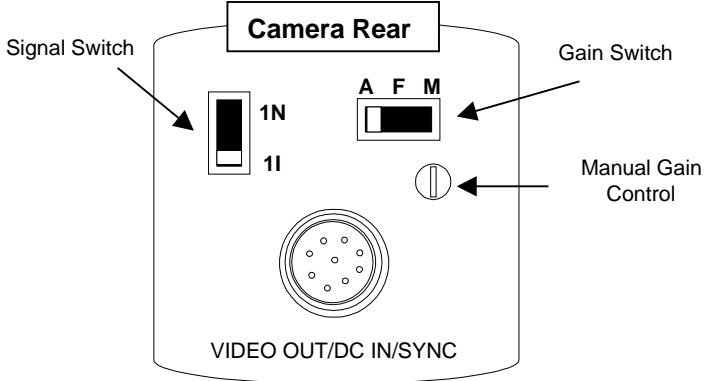
Camera Descriptions	<ul style="list-style-type: none"> • 646×485. • Single channel analog video output. • Interlaced or Progressive scan. • Internal (composite) sync. • Pixel Clock rate: 12.27 MHz
Interface modes	<ul style="list-style-type: none"> • Continuous (Interlaced, Progressive scan), Asynchronous reset (E-DONPISHA-II)
Camera Interface Briefs	<p>Mode 1: Continuous (Interlaced)</p>  <p>* Matrox Genesis Main Board with Grab Module</p> <ul style="list-style-type: none"> • $640 \times 480 \times 8$-bits. • Single channel analog video output. • Interlaced. • Matrox Genesis receiving continuous video signals from camera. • DCF used: XC55C.DCF <p>Mode 2: Continuous (Progressive scan)</p>  <p>* Matrox Genesis Main Board with Grab Module</p> <ul style="list-style-type: none"> • $640 \times 473 \times 8$-bits. • Single channel analog video output. • Progressive scan. • Matrox Genesis receiving continuous video signals from camera. • DCF used: XC55N.DCF

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<p>Camera Interface Briefs (continued)</p>	<p>Mode 3: Asynchronous reset (E-DONPISHA-II)</p>  <ul style="list-style-type: none"> • 640 × 473 × 8-bits. • Single channel analog video output. • Progressive scan. • Matrox Genesis receiving TTL external trigger. • Matrox Genesis sending EXPOSURE1 (TRIGGER), EXPOSURE2 (VD), HSYNC (HD) signals to camera; EXPOSURE1 (TRIGGER) signal sent to reset pixels and initiate exposure. • Matrox Genesis receiving video signals from camera. • DCF used: XC55NA.DCF <p><small>*Matrox Genesis Main Board with Grab Module **Matrox Digital Cable Adapter Module</small></p>
<p>Camera Interface Details</p>	<p>Signal Switch settings:</p> <p>Mode 1: Continuous (Interlaced): 1I</p> <p>Mode 2: Continuous (Progressive scan): 1N</p> <p>Mode 3: Asynchronous reset (E-DONPISHA-II) : 1N</p>  <p>Mode 3: Asynchronous reset (E-DONPISHA-II)</p> <ul style="list-style-type: none"> • The frame rate is determined by the frequency of the TTL external trigger. • The external trigger is input on the Matrox Genesis via the analog trigger input. • Once this external trigger is received, the Matrox Genesis generates an EXPOSURE1 (TRIGGER) pulse which in turn initiates camera exposure. • The exposure time is the EXPOSURE1 (TRIGGER) period plus a fixed internal camera delay of 8 µsec.

Application Note:

Interfacing non-standard cameras to Matrox Genesis

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Camera Interface Details (continued)	<p>The diagram illustrates the timing relationship between four signals: TTL External Trigger, EXPOSURE1 (TRIGGER), EXPOSURE2 (VD), and Video (Video Out). The TTL External Trigger is a single pulse. EXPOSURE1 (TRIGGER) is a pulse whose width is labeled 'Exposure Time'. EXPOSURE2 (VD) is a pulse that starts after a 'Delay 8 μs' from the start of EXPOSURE1. Video (Video Out) is a signal that becomes 'Video Valid' during the EXPOSURE2 pulse.</p>																																																								
Cabling Requirements	<p>Mode 1-2: Continuous</p> <ul style="list-style-type: none">IMG-7W2-TO-5BNC (red BNC) or IMG-7W2-TO-1BNC cable required for video output of camera. <table><tr><td colspan="2">Power Supply</td><td colspan="2">Sony XC-55 (12-pin connector)</td></tr><tr><td>Pin name</td><td>Pin no.</td><td>Pin name</td><td>Pin no.</td></tr><tr><td>+ 12 volts</td><td></td><td>+ 12 volts</td><td>02</td></tr><tr><td>GROUND</td><td></td><td>GROUND</td><td>01</td></tr></table> <p>Mode 3: Asynchronous reset (E-DONPISHA-II)</p> <ul style="list-style-type: none">IMG-7W2-TO-5BNC and DBHD68-TO-OPEN cables required TTL external trigger signal and for video output of camera respectively.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><td colspan="2">Digital Cable Adapter Board (DBHD68-TO-OPEN)</td><td colspan="2">SONY XC-55 (12-pin connector)</td></tr><tr><td>Pin name</td><td>Pin no.</td><td>Pin name</td><td>Pin no.</td></tr><tr><td>EXPOSURE1, OUTPUT, TTL</td><td>24 →</td><td>EXT. TRIGGER INPUT</td><td>09</td></tr><tr><td>EXPOSURE2, OUTPUT, TTL</td><td>58 →</td><td>VD</td><td>07</td></tr><tr><td>GROUND</td><td>28</td><td>GROUND</td><td>08</td></tr><tr><td>HSYNC, OUTPUT, TTL</td><td>62 →</td><td>HD</td><td>06</td></tr></table> <table><tr><td colspan="2">Power Supply</td><td colspan="2">SONY XC-55 (12-pin connector)</td></tr><tr><td>Pin name</td><td>Pin no.</td><td>Pin name</td><td>Pin no.</td></tr><tr><td>+ 12 volts</td><td></td><td>+ 12 volts</td><td>11</td></tr><tr><td>GROUND</td><td></td><td>GROUND</td><td>10</td></tr></table>	Power Supply		Sony XC-55 (12-pin connector)		Pin name	Pin no.	Pin name	Pin no.	+ 12 volts		+ 12 volts	02	GROUND		GROUND	01	Digital Cable Adapter Board (DBHD68-TO-OPEN)		SONY XC-55 (12-pin connector)		Pin name	Pin no.	Pin name	Pin no.	EXPOSURE1, OUTPUT, TTL	24 →	EXT. TRIGGER INPUT	09	EXPOSURE2, OUTPUT, TTL	58 →	VD	07	GROUND	28	GROUND	08	HSYNC, OUTPUT, TTL	62 →	HD	06	Power Supply		SONY XC-55 (12-pin connector)		Pin name	Pin no.	Pin name	Pin no.	+ 12 volts		+ 12 volts	11	GROUND		GROUND	10
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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: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 your local sales representative or Matrox Sales office or Matrox Imaging Applications at 514-822-6061 for assistance.

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