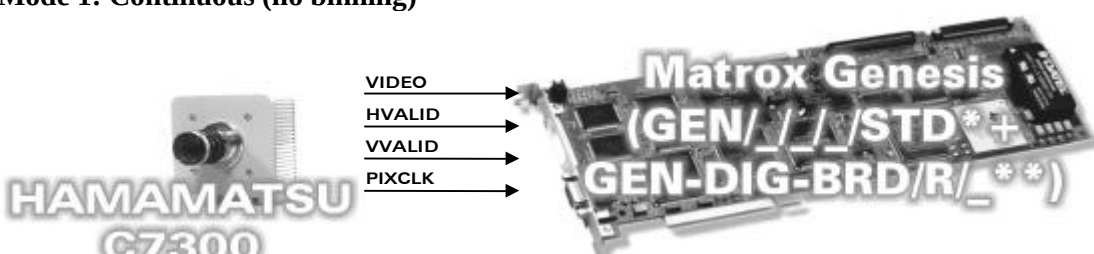
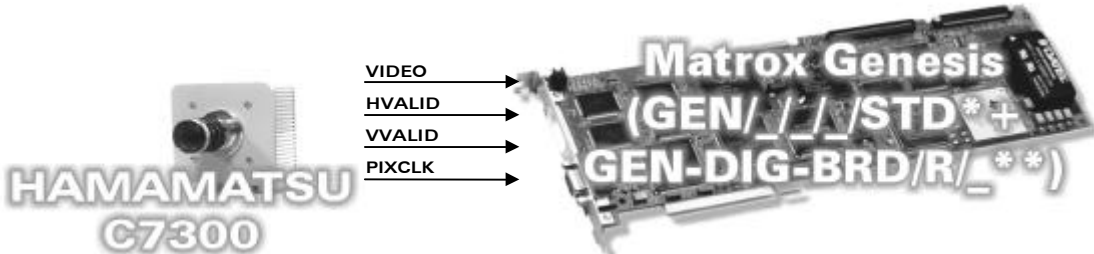


Application Note:

Interfacing non-standard cameras to Matrox Genesis

HAMAMATSU C7300-10-12NR

December 16, 1999

Camera Descriptions	• $1280 \times 1024 \times 12$-bit. • Single channel RS-422 digital video output. • Progressive scan. • Pixel clock rate: 20 MHz.
Interface modes	• Continuous (no binning, binning)
Camera Interface Briefs	Mode 1: Continuous (no binning)  Up to $1280 \times 1024 \times 12$-bit. Single channel RS-422 digital video. Progressive scan. Continuous video. Matrox Genesis receiving HSYNC (HVALID), VSYNC (VVALID), PIXEL CLOCK (PIXCLK @ 20 MHz) and video signals from camera. DCF used: 7300DN1.DCF (1280×1024 @ 13 fps) DCF used: 7300DN2.DCF (1024×1024 @ 14.8 fps) *Matrox Genesis main board with grab module **Matrox RS-422 digital data input board
	Mode 2: Continuous (binning)  Up to $640 \times 512 \times 12$-bit. Single channel RS-422 digital video. Progressive scan. Continuous video. Matrox Genesis receiving HSYNC (HVALID), VSYNC (VVALID), PIXEL CLOCK (PIXCLK @ 20 MHz) and video signals from camera. DCF used: 7300DNB1.DCF (640×512 @ 26 fps) DCF used: 7300DNB2.DCF (512×512 @ 28.5 fps) *Matrox Genesis main board with grab module **Matrox RS-422 digital data input board

Application Note:

Interfacing non-standard cameras to Matrox Genesis

HAMAMATSU C7300-10-12NR

December 16, 1999

Camera Interface Details	Mode 1 and 2: Continuous (no binning, binning) • Camera setting and Mode of operation: Configured via the Hamamatsu Digital Camera Control software for RS-232 serial port control. Please note that the Fast Repetition Mode (or Dual Image Acquisition/PIV Mode) is not available. Refer to the camera manual for details.																																																																																																																																																	
Cabling Requirements	Mode 1-4: Continuous • DBHD100-TO-OPEN cable and GEN/DIG/BRD/R/_ board required for synchronization, control and video signals from camera. • Connections should be made between the 68-pin connector of the camera and Matrox Genesis are as follows: <table><thead><tr><th colspan="2">GEN/DIG/BRD/R/_ (100-pin connector)</th><th></th><th colspan="2">HAMAMATSU C7300-10-12NR (68-pin connector)</th></tr><tr><th>Pin name</th><th>Pin no.</th><th></th><th>Pin name</th><th>Pin no.</th></tr></thead><tbody><tr><td>DATA, INPUT, 0-</td><td>02</td><td>←</td><td>DB0-</td><td>04</td></tr><tr><td>DATA, INPUT, 0+</td><td>01</td><td>←</td><td>DB0+</td><td>38</td></tr><tr><td>DATA, INPUT, 1-</td><td>04</td><td>←</td><td>DB1-</td><td>05</td></tr><tr><td>DATA, INPUT, 1+</td><td>03</td><td>←</td><td>DB1+</td><td>39</td></tr><tr><td>DATA, INPUT, 2-</td><td>06</td><td>←</td><td>DB2-</td><td>06</td></tr><tr><td>DATA, INPUT, 2+</td><td>05</td><td>←</td><td>DB2+</td><td>40</td></tr><tr><td>DATA, INPUT, 3-</td><td>08</td><td>←</td><td>DB3-</td><td>07</td></tr><tr><td>DATA, INPUT, 3+</td><td>07</td><td>←</td><td>DB3+</td><td>41</td></tr><tr><td>DATA, INPUT, 4-</td><td>10</td><td>←</td><td>DB4-</td><td>08</td></tr><tr><td>DATA, INPUT, 4+</td><td>09</td><td>←</td><td>DB4+</td><td>42</td></tr><tr><td>DATA, INPUT, 5-</td><td>12</td><td>←</td><td>DB5-</td><td>09</td></tr><tr><td>DATA, INPUT, 5+</td><td>11</td><td>←</td><td>DB5+</td><td>43</td></tr><tr><td>DATA, INPUT, 6-</td><td>14</td><td>←</td><td>DB6-</td><td>10</td></tr><tr><td>DATA, INPUT, 6+</td><td>13</td><td>←</td><td>DB6+</td><td>44</td></tr><tr><td>DATA, INPUT, 7-</td><td>16</td><td>←</td><td>DB7-</td><td>11</td></tr><tr><td>DATA, INPUT, 7+</td><td>15</td><td>←</td><td>DB7+</td><td>45</td></tr><tr><td>DATA, INPUT, 8-</td><td>18</td><td>←</td><td>DB8-</td><td>12</td></tr><tr><td>DATA, INPUT, 8+</td><td>17</td><td>←</td><td>DB8+</td><td>46</td></tr><tr><td>DATA, INPUT, 9-</td><td>20</td><td>←</td><td>DB9-</td><td>13</td></tr><tr><td>DATA, INPUT, 9+</td><td>19</td><td>←</td><td>DB9+</td><td>47</td></tr><tr><td>DATA, INPUT, 10-</td><td>22</td><td>←</td><td>DB10-</td><td>14</td></tr><tr><td>DATA, INPUT, 10+</td><td>21</td><td>←</td><td>DB10+</td><td>48</td></tr><tr><td>DATA, INPUT, 11-</td><td>24</td><td>←</td><td>DB11-</td><td>15</td></tr><tr><td>DATA, INPUT, 11+</td><td>23</td><td>←</td><td>DB11+</td><td>49</td></tr><tr><td>CLOCK, INPUT, -</td><td>40</td><td>←</td><td>PIXCLK-</td><td>01</td></tr><tr><td>CLOCK, INPUT, +</td><td>39</td><td>←</td><td>PIXCLK+</td><td>35</td></tr><tr><td colspan="5">continued</td></tr></tbody></table>	GEN/DIG/BRD/R/_ (100-pin connector)			HAMAMATSU C7300-10-12NR (68-pin connector)		Pin name	Pin no.		Pin name	Pin no.	DATA, INPUT, 0-	02	←	DB0-	04	DATA, INPUT, 0+	01	←	DB0+	38	DATA, INPUT, 1-	04	←	DB1-	05	DATA, INPUT, 1+	03	←	DB1+	39	DATA, INPUT, 2-	06	←	DB2-	06	DATA, INPUT, 2+	05	←	DB2+	40	DATA, INPUT, 3-	08	←	DB3-	07	DATA, INPUT, 3+	07	←	DB3+	41	DATA, INPUT, 4-	10	←	DB4-	08	DATA, INPUT, 4+	09	←	DB4+	42	DATA, INPUT, 5-	12	←	DB5-	09	DATA, INPUT, 5+	11	←	DB5+	43	DATA, INPUT, 6-	14	←	DB6-	10	DATA, INPUT, 6+	13	←	DB6+	44	DATA, INPUT, 7-	16	←	DB7-	11	DATA, INPUT, 7+	15	←	DB7+	45	DATA, INPUT, 8-	18	←	DB8-	12	DATA, INPUT, 8+	17	←	DB8+	46	DATA, INPUT, 9-	20	←	DB9-	13	DATA, INPUT, 9+	19	←	DB9+	47	DATA, INPUT, 10-	22	←	DB10-	14	DATA, INPUT, 10+	21	←	DB10+	48	DATA, INPUT, 11-	24	←	DB11-	15	DATA, INPUT, 11+	23	←	DB11+	49	CLOCK, INPUT, -	40	←	PIXCLK-	01	CLOCK, INPUT, +	39	←	PIXCLK+	35	continued				
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Application Note:

Interfacing non-standard cameras to Matrox Genesis

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

HAMAMATSU C7300-10-12NR

December 16, 1999

Cabling Requirements (continued)	GEN/DIG/BRD/R/_ (100-pin connector)		HAMAMATSU C7300-10-12NR (68-pin connector)	
	Pin name	Pin no.	Pin name	Pin no.
	HSYNC, INPUT, -	34	← HVALID-	02
	HSYNC, INPUT, +	33	← HVALID+	36
	VSYNC, INPUT, -	36	← VVALID-	03
	VSYNC, INPUT, +	35	← VVALID+	37
	GROUND	38	-- GND	21
	GROUND	50	-- GND	55
	USER, INPUT, 0-	42	← A/D OVF-	20
	USER, INPUT, 0+	41	← A/D OVF+	54

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 your local sales representative or Matrox Sales office or Matrox Imaging Applications at 514-822-6061 for assistance.

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