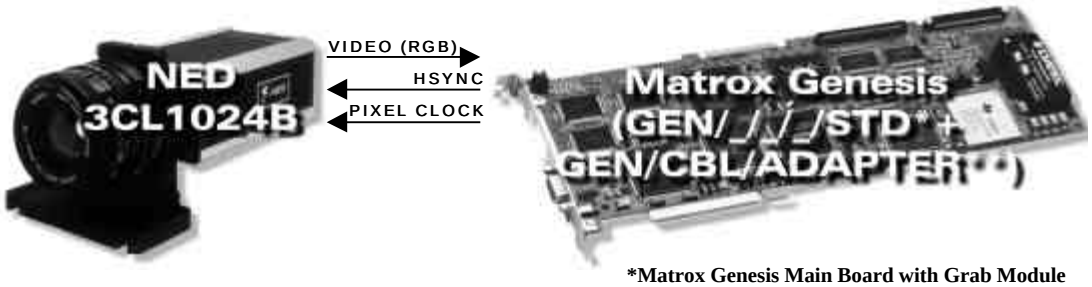
Application Note:
Interfacing non-standard cameras to Matrox Genesis

MATROX GENESIS

NED 3CL1024B **August 10, 1998**

Camera Descriptions	• 1024 × 8-bit. • Analog RGB video output. • Internal exposure control. • Pixel Clock rate of 10 MHz.
Interface mode	• Fixed line scan rate mode (Genesis master)
Camera Interface Briefs	**Mode 1: Fixed line scan rate (Genesis master)**  ***Matrox Genesis Main Board with Grab Module** ****Matrox Digital Cable Adapter Board** • 1024 × 8-bit. • Analog RGB video output. • DCF configured for 512 lines per virtual frame. • Line scan rate is fixed and determined by the frequency of the HSYNC signal. • Exposure time is software controlled in Matrox Intellicam. • Matrox Genesis sending RS-422 HSYNC and RS-422 PIXEL CLOCK (CMCLK) signals to camera. • Matrox Genesis receiving RGB video signal from camera. • DCF used: NED1CGM.DCF
Camera Interface Details	**Mode 1: Fixed line scan rate mode (Genesis master)** • Matrox Genesis sending HSYNC and PIXEL CLOCK (CMCLK) signals to the camera; the camera awaits the rising edge of the HSYNC signal and after a short (constant) delay initiates line readout. • **Line rate**: The HSYNC frequency specifies the line rate of the camera. The HSYNC frequency is currently set to **3.7397 kHz**. With a **10 MHz** pixel clock this translate to a **3.7397 kHz** line rate. • **Exposure time**: Exposure time is controlled by the RS-422 HSYNC which in turn is reset by the EXPOSURE1 (EXSYNC) setting in Matrox Intellicam. The default exposure time for this DCF is **6000 pixel clocks** or **0.6 ms**. The exposure time of the camera can be modified in the DCF using Matrox Intellicam EXPOSURE1 setting, Genesis Native Library function **imCamControl()** or with the MIL digitizer control function **MdigControl()**. Refer to the appropriate manual or user guide for additional information.

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Cabling Requirements

Mode 1: Fixed line scan rate (Genesis master)

- IMG-7W2-TO-5BNC cable and GEN/CBL/ADAPTER required for video output of camera.
- Video input BNC of IMG-7W2-TO-5BNC cable should be connected to VIDEO OUT BNC connector of camera.
- Connections between the 68-pin connector of the GEN/CBL/ADAPTER and the 15-pin connector of the camera are as follows:

NED FS5150HB (15-pin connector)			**GEN/CBL/ADAPTER (PLS/CBL/OPEN connector)**	
Pin name	***Pin no.***		***Pin name***	***Pin no.***
HSYNC +	04	←	HSYNC, OUTPUT, 422+	08
HSYNC-	11	←	HSYNC, OUTPUT, 422-	42
CLOCK+	03	←	CLOCK, OUTPUT, 422+	06
CLOCK-	10	←	CLOCK, OUTPUT, 422-	40

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). 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.

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 IMAGING