Matrox **Corona-II** ≫

High-quality PCI frame grabber for RGB or monochrome video acquisition with integrated DualHead display.

Key features

- long PCI form factor
- captures from interlaced or progressive scan component RGB or single/dual channel monochrome analog video sources
- three 10-bit A/D converters[1]
- acquisition rates of up to 30 MHz
- connect two RGB or up to six analog monochrome video sources
- configurable LUTs (three 256 x 8-bit or two 1024 x 10-bit)
- trigger input and timer outputs
- 32-bit/33 MHz PCI bus-master
- extensive on-board buffering for reliable capture
- VGA display at up to 1280 x 1024
- non-destructive overlay of true-color graphics on live video
- separate and independent composite Y/C or or RGB NTSC/PAL video output
- power output and RS-232 serial interface
- programmed using Matrox Imaging Library (MIL) sold separately
- supports 32-bit Microsoft® Windows® XP

High-Fidelity Flexible Video Capture and Display

Combining high-fidelity flexible video capture and display on a single PCI board, Matrox Corona-II is an all-in-one solution for imaging OEMs and integrators. Designed to capture from standard or variable, and monochrome or component RGB frame scan sources, it specifically supports capture from interlaced or progressive scan component RGB cameras or single/dual-channel progressive scan monochrome cameras. Coupled to these video capture capabilities is the Matrox G400 graphics controller.
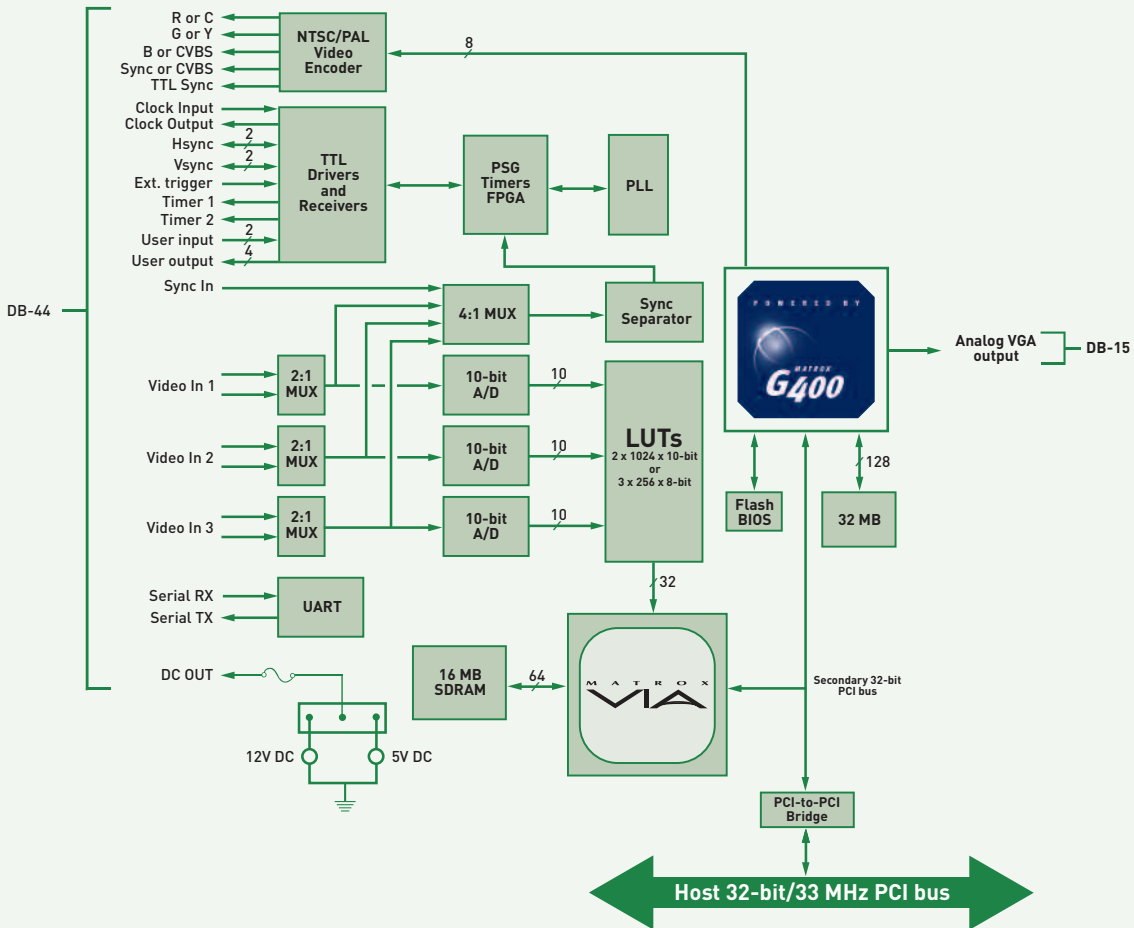
Graphics by Matrox
Matrox Corona-II features the award-winning graphics controller from Matrox Graphics Inc., a leader in PC graphics technology. The MGA G400 boasts an impressive set of features including non-destructive graphics overlay on live video, support for video-in-a-window with arbitrary video scaling (up or down) and the ability to simultaneously have independent analog VGA and TV outputs.

VIA: Managing acquisition in real time
Video capture to on-board display or host memory is controlled by the Matrox VIA. The VIA is a video interface bridge that manages real-time acquisition into a temporary frame buffer and in parallel, streams image data over the PCI bus at sustained rates of 130 MB/s without requiring constant host CPU intervention.

MATROX IMAGING

Block diagram labels:
- R or C
- G or Y
- B or CVBS
- Sync or CVBS
- TTL Sync
- NTSC/PAL Video Encoder
- 8
- Clock Input
- Clock Output — 2
- Hsync — 2
- Vsync
- Ext. trigger
- Timer 1
- Timer 2
- User input — 2
- User output — 4
- TTL Drivers and Receivers
- PSG Timers FPGA
- PLL
- Sync In
- 4:1 MUX
- Sync Separator
- DB-44
- Video In 1 — 2:1 MUX — 10-bit A/D — 10
- Video In 2 — 2:1 MUX — 10-bit A/D — 10
- Video In 3 — 2:1 MUX — 10-bit A/D — 10
- LUTs 2 x 1024 x 10-bit or 3 x 256 x 8-bit
- G400 (POWERED BY MATROX)
- Analog VGA output — DB-15
- Flash BIOS
- 32 MB
- 128
- Serial RX
- Serial TX
- UART
- 32
- DC OUT
- 16 MB SDRAM — 64
- MATROX VIA
- Secondary 32-bit PCI bus
- 12V DC
- 5V DC
- PCI-to-PCI Bridge
- **Host 32-bit/33 MHz PCI bus**

Field-proven application development software

Matrox Corona-II is supported by the Matrox Imaging Library (MIL), a comprehensive collection of software tools for developing industrial imaging applications. MIL features interactive software and programming functions for image capture, processing, analysis, annotation, display and archiving. These tools are designed to enhance productivity, thereby reducing the time and effort required to bring your solution to market. Refer to the MIL datasheet for more information.

Display capabilities

Matrox Corona-II supports simultaneous analog VGA output with independent TV output. For example, the analog VGA output can run at 1024 x 768 showing the user-interface and video window, while the TV output runs at NTSC/PAL resolutions showing the contents of the video window in full screen.

Simultaneous analog VGA and TV outputs

Specifications

Acquisition

- monochrome or component RGB, interlaced or progressive scan
- three 10-bit A/D converters[1]
- analog sampling rate up to 30 MHz
- SNR of 45.6 dB @ 8-bit and 50.4 dB @ 10-bit[2,3]
- pixel jitter of ± 1.8 ns to ± 3.2 ns[2,4]
- variable gain amplifier
- three selectable input low-pass filters with bypass
- adjustable ADC references
- connect and switch between two component RGB or up to six monochrome analog video sources
- configurable LUTs
  - 3 x 256 x 8-bit
  - 2 x 1024 x 10-bit
- separate TTL pixel clock, hsync, vsync and timer (exposure)
- opto-isolated differential and TTL trigger inputs (synchronous and asynchronous to video)
- video source present and horizontal lock detect logic
- two TTL auxiliary inputs and four TTL auxiliary outputs

RS-232 interface

- supports RX and TX signals
- not visible to OS (programmed through MIL API)

Display

- MGA G400 graphics controller
- 32 MB buffer shared between video and graphics
- simultaneous analog VGA output with independent TV display output
- VGA resolution up to 1280 x 1024 @ 75 Hz
- non-destructive true-color graphics overlay on live video with no host CPU intervention
- TV output capable of CVBS, Y/C or RGB in NTSC/PAL square pixel video formats

Power output

- 5 or 12V DC at 1.0 A
- from PC power supply (not PCI slot)

Host interface

- 32-bit/33 MHz PCI bus master/slave
- up to 130 MB/second sustained
- 16MB SDRAM buffer
- support for packed or planar image data formats
- interrupts for start and end of field, frame and sequence capture
- universal 32-bit card edge connector

Dimensions and environmental information

- 31.4 cm L x 10.7 cm H (12.4" x 4.2") from bottom edge of goldfinger to top edge of board
- 34.1 cm L x 10.7 cm H (13.4" x 4.2") including retainer
- power consumption: 3.3A @ 5V or 16.5W, 500mA @ 12V or 6W, 100mA @ -12V or 1.2W, 23.7W total[5]
- operating temperature: 0º C to 55º C (32º F to 131º F)
- relative humidity: up to 95% (noncondensing)
- FCC class B
- CE class B
- RoHS-compliant

Software Driver

- Matrox Imaging Library (MIL) driver for 32-bit Microsoft® Windows® XP

Ordering Information

Hardware

Part number	Description
CORONA2*	Standard/non-standard analog color/monochrome area scan PCI frame grabber with integrated 32 MB display and video encoder.

Software
Refer to MIL datasheet.

Analog input cables

Part number	Description
COR2-44-TO-13	1.8 m (6') input cable, high density DB-44 to thirteen BNCs.
COR2-44-TO-13/O	1.8 m (6') input cable, high density DB-44 to thirteen BNCs and open end to access sync. and control signals (requires customization).

Notes:

1. For 2 x 10-bit monochrome or 3 x 8-bit (RGB) acquisition.
2. Results obtained from characterization and not systematic measurements.
3. Worst case across input channel, gain and input filter settings.
4. Depends on horizontal reference and sampling frequency.
5. Under worst case conditions.

For more information, please call: 1-800-804-6243 (toll free in North America) or (514) 822-6020
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