Matrox **Orion** ≫

Low-cost color/monochrome frame grabber with integrated display for AGP or PCI.

Key features

- › AGP or PCI form factor

- › composite, S-video, or RGB NTSC/PAL video capture

- › composite RS-170/CCIR video capture

- › up to 8 video inputs

- › arbitrary video scaling

- › trigger input

- › VGA display up to 1280 x 1024

- › non-destructive overlay of true-color graphics on live video

- › separate and independent composite, Y/C or RGB NTSC/PAL video output

- › NTSC/PAL video output is synchronized to video input

- › 32 MB graphics and video buffer

- › available software is sold separately and includes Matrox Imaging Library (MIL)/ ActiveMIL, MIL-Lite/ActiveMIL-Lite and Matrox Inspector

- › supports Microsoft® Windows® 98, Windows® Me, Windows NT® 4.0, Windows® 2000 and Windows® XP

Value-packed Video Capture and Display

Cost-effective yet feature rich, Matrox Orion is the ideal choice for basic color or monochrome imaging applications. Matrox Orion supports standard color/ monochrome video capture and features an integrated display based on the MGA G400 graphics controller, providing leading edge graphics features and performance.

AGP or PCI bus

Available for AGP or PCI, Matrox Orion meets the platform requirements of today's PC-based video capture applications. AGP's high data transfer rate enables the design of rich user interfaces by offering faster graphics updates, providing faster image capture to host memory and freeing up host CPU cycles as well as PCI bandwidth for other tasks. Using AGP frees up a PCI slot for other peripherals, while PCI provides compatibility with industrial and older generation PCs.
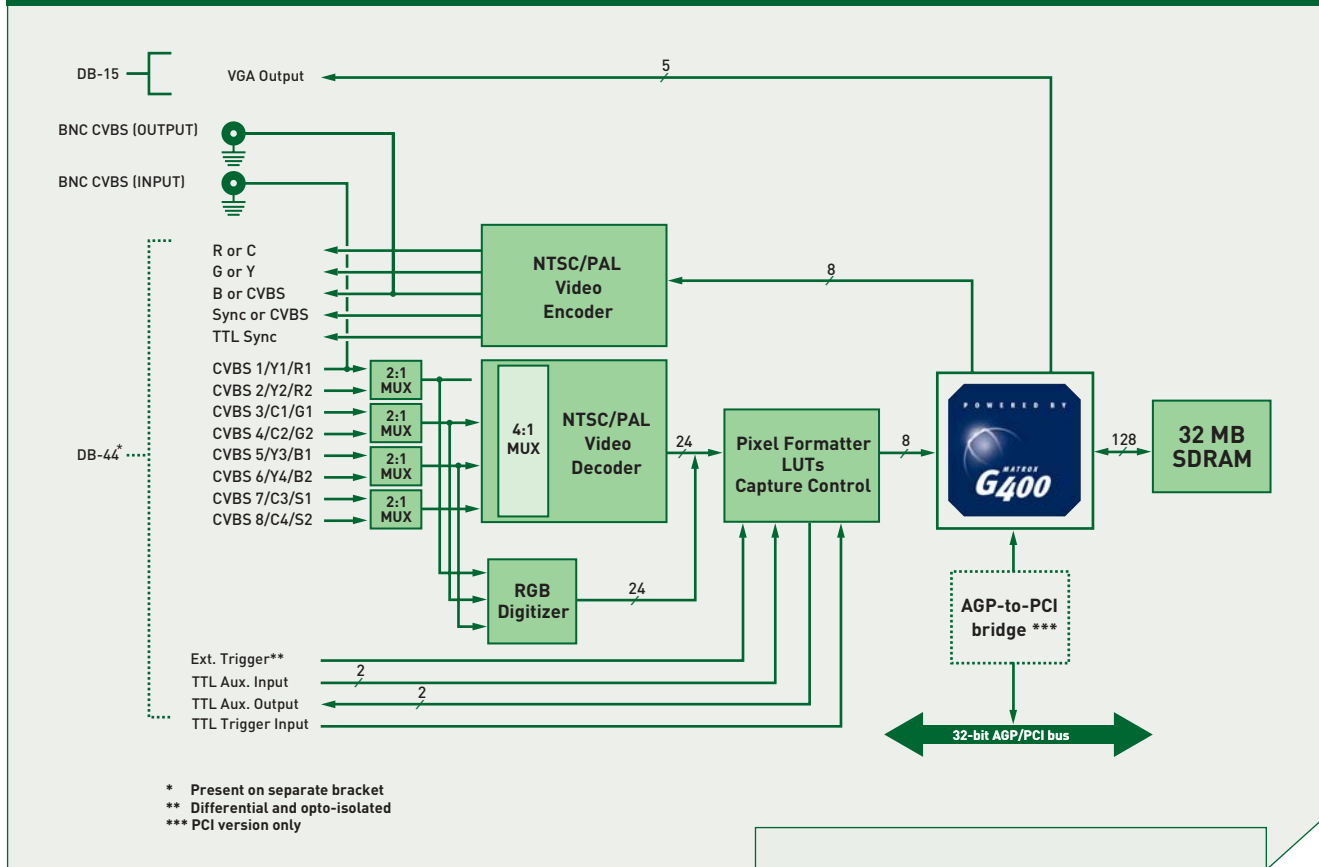
Standard video capture

Matrox Orion captures standard analog composite (CVBS) and Y/C in NTSC/PAL formats, and composite RS-170/CCIR video formats. It also includes discrete analog-to-digital converters (ADCs) for capturing component RGB in NTSC/PAL video formats. A separate trigger input is provided for synchronizing video capture to external events.

Matrox MGA G400 Graphics

Matrox Orion 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 two independent CRT controllers. On Matrox Orion, the primary CRT controller handles the main (VGA) display output while the second CRT controller handles secondary (TV) display output. In addition, the MGA G400 provides Matrox Orion with non-destructive true-color graphics overlay of live video without host CPU intervention, as well as arbitrary video scaling.
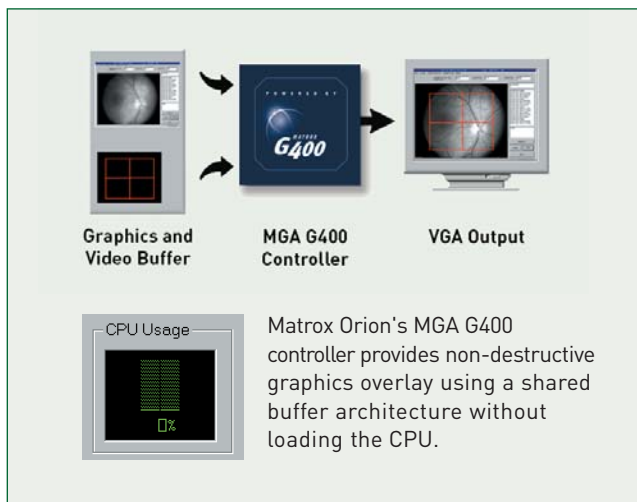
MATROX
IMAGING

⟩⟩ Matrox Orion

DB-15 — VGA Output

BNC CVBS (OUTPUT)
BNC CVBS (INPUT)

R or C
G or Y
B or CVBS
Sync or CVBS
TTL Sync

CVBS 1/Y1/R1 — 2:1 MUX
CVBS 2/Y2/R2 — 2:1 MUX
CVBS 3/C1/G1 — 2:1 MUX
CVBS 4/C2/G2
CVBS 5/Y3/B1 — 2:1 MUX
CVBS 6/Y4/B2
CVBS 7/C3/S1 — 2:1 MUX
CVBS 8/C4/S2

DB-44*

Ext. Trigger**
TTL Aux. Input
TTL Aux. Output
TTL Trigger Input

NTSC/PAL Video Encoder

4:1 MUX

NTSC/PAL Video Decoder

RGB Digitizer

Pixel Formatter LUTs Capture Control

POWERED BY MATROX G400

AGP-to-PCI bridge *

32 MB SDRAM

32-bit AGP/PCI bus

5   8   24   8   128   24   2   2

* Present on separate bracket
** Differential and opto-isolated
*** PCI version only

Independent secondary display

Matrox Orion supports a second display output that is independent of the primary display resolution. For example, the main display can run at 1024 x 768 showing the user-interface and video window, while the secondary display runs at NTSC/PAL resolutions showing contents of the video window in full screen. This feature is essential for applications that require a high-resolution display while simultaneously recording video using a VCR. In addition, the secondary video output can be synchronized to the video input to avoid tearing artifacts.

Graphics and Video Buffer → MGA G400 Controller → VGA Output

CPU Usage

Matrox Orion's MGA G400 controller provides non-destructive graphics overlay using a shared buffer architecture without loading the CPU.

Software

Software support is available for Windows® 98, Windows® Me, Windows NT® 4.0, Windows® 2000 and Windows® XP, and consists of Matrox Imaging Library (MIL)/ActiveMIL or MIL-Lite/ActiveMIL-Lite development toolkits for creating custom applications, as well as accelerated display drivers. Matrox Orion is also supported by Matrox Inspector Windows®-based interactive imaging software.

Specifications

Acquisition
Video decoder:
- capture analog composite (CVBS) or S-video (Y/C) in NTSC/PAL video formats
- capture analog composite (CVBS) in RS-170/CCIR video formats
- square pixel or CCIR-601 digitization
- programmable brightness, contrast, hue and saturation
- controllable AGC (freeze with manual adjust)
- pixel jitter: 4-5ns

RGB digitizer:
- capture analog component RGB in NTSC/PAL video formats
- square pixel or CCIR-601 digitization
- sync on R, G, or B, or separate analog sync
- selectable signal gain (0.5, 1.0, 1.4 and 2)
- pixel jitter: 4-5ns

Video inputs:
- connect and switch between 8 CVBS, 4 Y/C, 2 RGB or combination
- 8 MHz low pass filter applied to each input (can be bypassed)
- 75Ω terminated

Formatting:
- three 256 x 8-bit programmable LUTs
- arbitrary scaling (up and down)

Synchronization and control:
- capture can start on odd, even or any field
- separate analog sync
- opto-isolated differential trigger input (sync. to video)
- TTL auxiliary I/Os (2 in /2 out)

Display
- MGA G400 graphics controller
- 32 MB SDRAM buffer (shared between video and graphics)
- VGA resolutions up to 1280 x 1024 @ 8 or 32-bit
- refresh rates up to 200 Hz
- non-destructive true-color graphics overlay on live video with no host CPU intervention
- separate CVBS, Y/C or RGB output in NTSC/PAL video formats
  - square pixel or CCIR-601 resolution
  - independent of VGA resolution
  - can be synchronized to video input

Host interface
- AGP
  - 1x and 2x modes
  - for motherboards with ATX form factor[1]
  - 3.3 V or 1.5 V slots
- PCI
  - 32-bit/33 MHz
- universal 32-bit card edge connector

Connectors pinouts
To see connector pinout diagrams for the Matrox Orion frame grabber, visit the product section of the Matrox Imaging web site: http://www.matrox.com/imaging/products/orion

Dimensions and environmental information
- AGP: 17.5 cm L x 10.8 cm H (6.9" L x 4.3" H)[2]
- PCI: 17.5 cm L x 11.4 cm H (6.9" L x 4.5" H)[2]
- operating temperature: 0° C to 55° C (32° F to 131° F)
- relative humidity: up to 95% (non-condensing)
- FCC class A
- CE class A

Software Environment
- drivers for Windows® 98, Me, NT® 4.0, 2000 and XP
- programmed using DLL interface (MIL/MIL-Lite) with Microsoft® Visual C++®
- programmed using ActiveX (OCX) interface (ActiveMIL/ActiveMIL-Lite) with Microsoft® Visual Basic® or C++®

Ordering Information

Hardware

Part number	Description
ORI-AGP/RGB	Standard analog color/monochrome AGP frame grabber with integrated true color VGA display and separate TV output.
ORI-PCI/RGB	Standard analog color/monochrome PCI frame grabber with integrated true color VGA display and separate TV output.

Ordered separately:

Software

Part number	Description
MIL LITE 7	MIL-Lite board control library (see MIL-Lite brochure for more details).
MIL 7 DEV P or U	Matrox Imaging Library (MIL) (see MIL brochure for more details).
INSPECTOR 4 P or U	Matrox Inspector Interactive Windows® imaging software (see Inspector brochure for more details).

Input cables

Part number	Description
DBHD44-TO-13BNC	2 m (7') input cable, high density DB-44 to thirteen BNCs. Includes six SVHS adapters.
DH44-TO-13BNC/0	0.9 m (3') input cable, high density DB-44 to thirteen BNCs and open end (to access sync. and control signals). Includes six SVHS adapters.

Notes:

1. Not for NLX.
2. Vertical dimensions are from bottom edge of goldfinger to top edge of board. Horizontal dimensions are from edges of the board excluding bracket.

For more information, please call: 1-800-804-6243 (toll free in North America) or (514) 822-6020 or e-mail: imaging.info@matrox.com or http://www.matrox.com/imaging

matrox