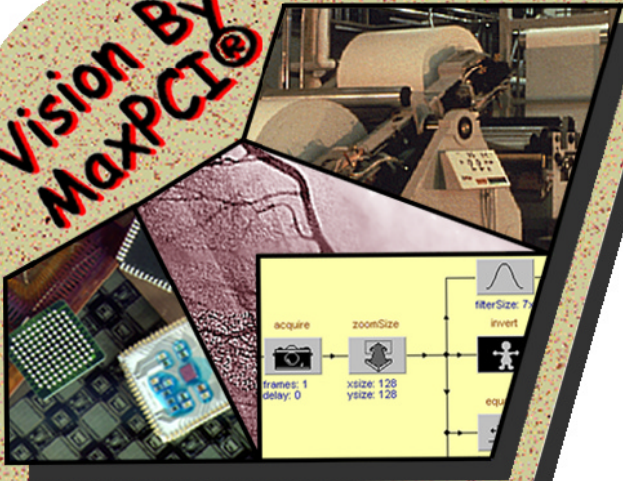




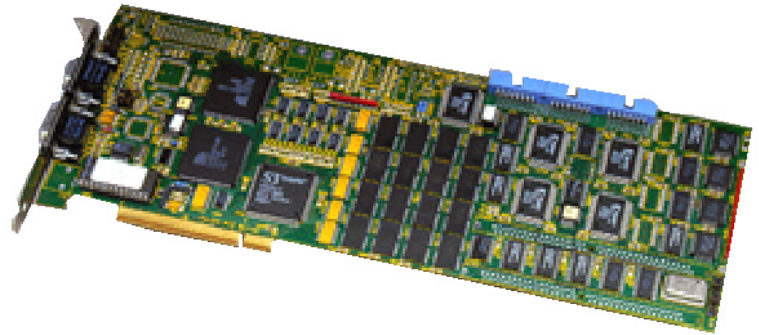
MaxVGA Display Card

High Resolution Video for MaxPCI

**Vision By
MaxPCI®**



- Displays up to 30 frames per second of 1024x1024 8-bit grayscale video
- Continuous, high resolution live video for medical imaging, remote sensing, and industrial applications
- S3 964 Windows accelerated super-VGA display, up to 1280x1024 at 72 Hz non-interlaced
- Display can be triggered, halted, and double buffered in real-time
- Private video bus from MaxPCI conserves PCIbus bandwidth
- 2MB VRAM overlay for WindowsNT display
- 2MB VRAM image memory on board



The high-resolution MaxVGA display card allows Datacube MaxPCI users to display real-time video in a Windows NT® environment without utilizing the bandwidth provided by the PCI bus. The combination of the MaxPCI and MaxVGA cards results in a powerful PC-based image processing system with exceptional graphics capabilities.

Traditionally, PCI-based image processing systems copy image data from the PCI card across the PCI bus to the host's video card for display. The High Speed Image Access (HSIA) available on the MaxPCI card significantly speeds up such transfers. However, this approach can place unreasonable demands on the PCI bus when larger images, with higher frame rates, must be displayed. The MaxVGA display card alleviates many unnecessary demands placed on the PCI bus by providing an industry standard, high performance accelerated Windows NT display.

The MaxVGA is a single-slot PCI bus display card that is connected to the MaxPCI image processing card from Datacube via a private 40 MHz digital bus. With this private bus, transfer of images requires no system bus bandwidth and only negligible CPU resources. The MaxVGA display card allows applications running on a MaxPCI card to display both a graphical user interface and the resulting video image on a single monitor within standard Windows NT windows.

When connected to the MaxPCI card through this image data bus, the MaxVGA display card provides the display of up to 1024x1024 8-bit, grayscale or pseudo-color images to an independent window at

rates exceeding 30 frames per second in a Windows NT environment. This "windowing" provides application developers with the tools for continuous, high-resolution live video for medical imaging, remote sensing, and industrial inspection applications.

Dual Image Buffers

The MaxVGA display card provides two independent 2 MB image memories. The first is an 8-bit image memory for display that frees up the VSIM that would otherwise be used for image memory on the MaxPCI card. The second acts as a super-VGA graphics overlay buffer for Windows NT. Data can be displayed in either pseudo-color or grayscale, allowing up to 256 colors in underlay and 255 colors in overlay windows. The results are displayed flicker-free at up to 72 Hz non-interlaced refresh rates on inexpensive super-VGA monitors.

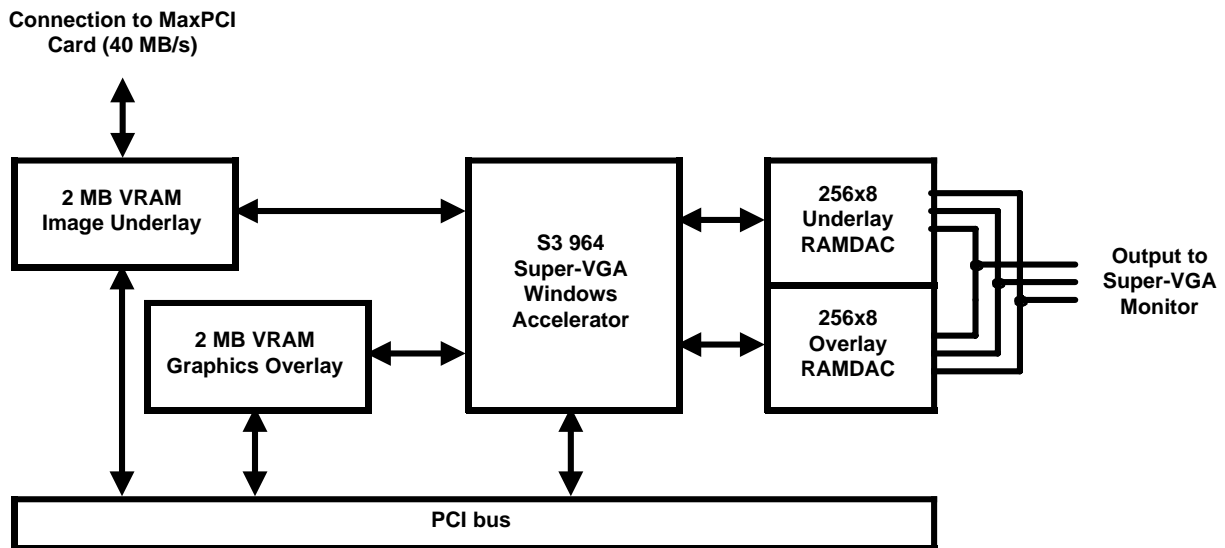
The MaxVGA display card has independent color-maps and pixel memory for the user interface and the image memory. This allows image data to fit the user interface palette without having to be remapped or dithered. In addition, image data transfers from a MaxPCI card do not have to be clipped where they are obscured by other windows.

Powerful Graphics Capabilities

The heart of the MaxVGA display card is the S3 Vision 964 VGA chip (S3 964). It controls host access to memory via the PCI bus. It also controls the display of video data from the MaxPCI card and the Windows NT overlay on the VGA monitor at a variety of resolutions. The S3 964 contains a powerful graphics engine acting as a Windows NT and GUI accelerator. Four modes of video output are supported including 1280x1024 @ 72 Hz, 1280x1024 @ 60 Hz, 1024x768 @ 75 Hz, and 1024x768 @ 60 Hz.

Complementary Hardware from Datacube

When combined with the MaxPCI image processing subsystem, the MaxVGA display card provides a uniquely capable system for image processing and display featuring a wide variety of acquisition front ends, a 10,000 MIPS image processing subsystem, and high-resolution, live video-in-a-window display.



Software Control

The MaxVGA display card can be controlled as a standard display device using its Windows NT driver set. The display can be triggered, halted, and double buffered under real-time PC ImageFlow PipeOp Altering Thread (PAT) control.

PC ImageFlow configures and manages data transfers and processing elements on Datacube's pipeline processing devices. It accomplishes this task with minimal overhead, achieving near-register-level performance while handling complex synchronization and timing issues, significantly simplifying pipeline processing control.

Specifications

The MaxVGA display card comes with the interconnect cable required to interface to the MaxPCI card from Datacube. The MaxVGA display card is also available as part of the [MaxPCI Workstation](#). In both cases, all software required to develop applications using the MaxVGA display card is included.

Physical Description

- Host Interface: 32-bit PCI bus, single full-length slot *
- Private bus for communication with the MaxPCI card
- MaxPCI interconnect cable included
- * Some PCI chassis do not accommodate full-length cards even when specified. PCI specification (2.1) reserves the full length of the chassis for such cards.

Software

- Operating System: Windows NT 4.0
- PC ImageFlow distributed on CD-ROM
- Microsoft® Visual C++® 5.0 support

Video Display

- Two independent 256x24 programmable RGB LUTs
- S3 964 graphics accelerator chip

Display Modes

- 1280x1024 @ 72 Hz
- 1280x1024 @ 60 Hz
- 1024x768 @ 75 Hz
- 1024x768 @ 60 Hz

Memory

- 2 MB VRAM image memory (underlay)
- 2 MB VRAM overlay memory

Power Requirements (all voltages $\pm 5\%$)

- +5.0 Volts 3.0 Amps (typical)
- 15.0 Watts total (typical)

Environmental Specifications

- Operating temperature: 0° to 55° C (32° to 131° F)
- Maximum Chip Case Temp: 85° C (185° F)
- Storage temperature: -20° to 85° C (-40° to 212° F)
- Relative humidity: 0% to 90% (non-condensing)
- Estimated MTBF: 20,000 hours

Additional Information

For more information about the products mentioned in this document, please refer to the following Datacube literature:

- [MaxPCI Data Sheet](#)
- [MaxPCI Industrial Workstation Data Sheet](#)
- [MaxACQ Data Sheets](#)
- [PSMOD Data Sheets](#)
- [DatacubeWIT Data Sheet](#)
- [PC ImageFlow Data Sheet](#)

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DATAcube - High Performance Imaging

North America East

Phone: 978-777-4200

Fax: 978-777-3117

North America West

Phone: 408-451-5950

Fax: 408-451-5959

Europe

Phone: +44 1582-461515

Fax: +44 1582-467478

Web Site: www.datacube.com

Email: info@datacube.com

