

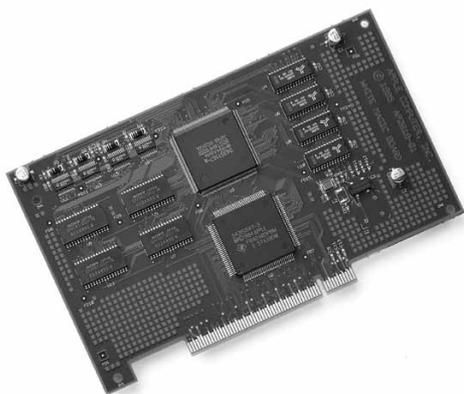


Apple Macintosh Cards Update

Information About New Cards

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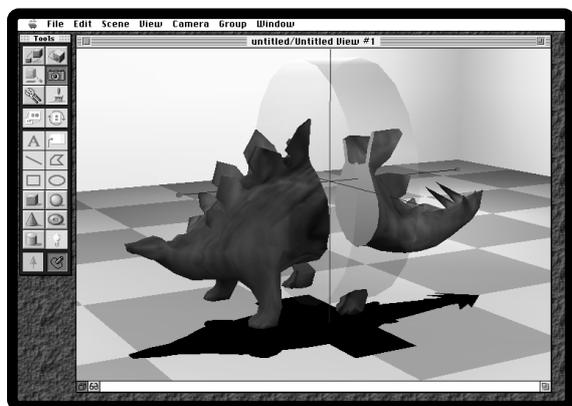
For Sales Personnel Only



QuickDraw 3D Accelerator Card

Product Description

The QuickDraw™ 3D Accelerator Card is a 7-inch hardware accelerator card that plugs easily into the PCI slot of an Apple® Power Macintosh® or other PCI-equipped computer running the Mac™ OS. In conjunction with QuickDraw 3D, a cross-platform application program interface (API) that is an emerging standard in the area of computer-based three-dimensional (3D) graphics and animation, this card accelerates interactive 3D imaging technology. It is designed to offer the high-performance 3D rendering capabilities needed by architects, graphic artists, multimedia developers, and scientists who work with visualization.



The QuickDraw 3D Accelerator Card significantly accelerates the processing of 3D graphics functions, such as texture mapping, transparency, and Gouraud shading, shown above.

Positioning

The QuickDraw 3D Accelerator Card provides workstation-class 3D rendering capabilities for users who require an easy-to-use and affordable desktop computer 3D graphics solution.

Key Selling Points

- **High performance.** The QuickDraw 3D Accelerator Card works with QuickDraw 3D to speed QuickDraw 3D rendering by as much as 12 times. It accelerates Gouraud shading, texture mapping, transparency, and Constructive Solid Geometry (CSG)—the complicated techniques that graphics professionals use most. It also allows rendering of 10 million trilinearly filtered, mipmapped texture pixels and up to 120,000 triangles per second. And its high-performance SRAM memory can display up to 12 texture maps simultaneously in each open window, so users can work on a number of complicated images at once.
- **Affordability.** This card is priced to provide an affordable, desktop computer solution for users who would otherwise have to consider purchasing a more expensive, workstation-class 3D graphics system.
- **Scalability.** Although a single QuickDraw 3D Accelerator Card accelerates rendering to all frame buffers (video cards) in the system, users can also opt to install multiple QuickDraw 3D Accelerator Cards for further performance improvements—particularly on rasterization-intensive tasks such as accelerating Gouraud shading, texture mapping, transparency, and CSG.
- **Ease of use.** Users can install the QuickDraw 3D Accelerator Card quickly and easily in a single step, without adding video connectors. In addition to easy installation, this card provides an easy-to-use, intuitive view of 3D interactions.
- **Compatibility.** Designed for compatibility, the QuickDraw 3D Accelerator Card works with all Macintosh® models with a PCI slot, as well as with any other PCI-equipped computer running the Mac OS. And it accelerates work with any application that supports QuickDraw 3D.

Prospects

The QuickDraw 3D Accelerator Card is designed to be an easy-to-use, scalable hardware solution for professional customers involved in graphic arts, content/media authoring, and scientific work who require high-performance interactive 3D rendering capabilities at an affordable price.

Competitive Advantages

Over the next several months, a number of third-party QuickDraw 3D accelerator cards are expected to become available. These cards cover a range of features and costs, and will be offered by a variety of companies, including Matrox, YARC, ATI, and Radius.

The QuickDraw 3D Accelerator Card differs from competing cards in the following ways:

- It uses high-speed SRAM texture memory, for up to 12 simultaneous texture maps, so users can work on a number of complicated images at the same time without quality or performance degradation.
- It accelerates *all* system frame buffers, eliminating the need to buy a separate video or display card with 3D acceleration for each monitor connected to the computer.
- It provides “correct” rendering of transparent surfaces, allowing users to work with transparent objects with accuracy, speed, and ease.
- It is fully scalable; the performance of rasterization-intensive activities can be doubled by the addition of a second card.

In general, competing cards offer a somewhat broader feature set, but lack some of the specific capabilities provided by the QuickDraw 3D Accelerator Card, such as texture mapping. They are also significantly more costly. We believe that the combination of high performance features and low cost will make Apple’s QuickDraw 3D Accelerator Card attractive to a large audience, generating additional demand in the 3D market.

Relevant Terms

CSG (Constructive Solid Geometry). The ability to apply a Boolean function to a set of objects. It is particularly useful for CAD applications and collision detection.

Gouraud shading. Interpolation of colors across an object to achieve a smooth gradient of color or shading.

Mipmapping. A high-quality form of texture wrapping that provides sharp object resolution at any scale.

Per-pixel object sorting. Method by which an object’s pixels are sorted so that each pixel has its own address in relation to the others.

Rasterization-intensive tasks. Tasks such as Gouraud shading, texture mapping, and transparency, which make heavy demands on the computer’s processor.

Texture mapping. The wrapping of textures such as wood, brick, metal, or plastic around 3D objects.

Transparency. The ability to see through a 3D image to its rear surface.

Trilinear filtering. A means of wrapping textures that makes object lines clear and edges crisp and well-defined.

Q&A

Which popular QuickDraw 3D applications will work with this accelerator card?

The following products are already shipping: Strata StudioPRO v.1.75 and Cumulus from Canto Software GmbH. In addition, Infinid from Specular, Havoc from Reality-Bytes, Electric Image Animation System, RayDream Designer, PixelPutty from Valis, 3D World from Microspot, and Form • Z from Auto • des • sys are expected to be shipping by the end of the year, with more applications to follow in 1996.

Why did Apple decide to bring out its own graphics accelerator card?

Although a certain number of PCI-based graphics accelerator cards are already available from third parties—with more on the way—we felt that Apple was uniquely positioned to offer a card that maximized the promise of our own 3D technology: QuickDraw 3D. In addition, such cards had previously often been designed with the high-end customer in mind, rather than with affordability and ease of use as main concerns. The QuickDraw 3D Accelerator Card is an affordable, easy-to-use, yet highly capable 3D rendering solution that should appeal to a broad spectrum of customers.

What other types of PCI cards will Apple provide in the future?

In general, Apple looks to third parties to provide PCI-based solutions for its systems with PCI slots. However, in particular areas in which Apple feels that it can help move the industry forward, we will develop PCI cards ourselves. For example, Apple has already made several PCI cards available in the area of high-speed networking. In addition, Apple will be shipping PCI-based MPEG solutions as part of a future multimedia kit.

Additional Information

QuickDraw 3D Accelerator Card data sheet

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