

More power to design



POWER GXT4000P Graphics Accelerator

Highlights

Increases availability of advanced graphics technology by providing an exceptional combination of function and performance at an affordable price

Meets the rigorous demands of graphic-intensive applications, including MCAD and MCAE

Supports enhanced graphics functions, such as dual textures, hardware occlusion culling, 3D textures and bilinear video scaling

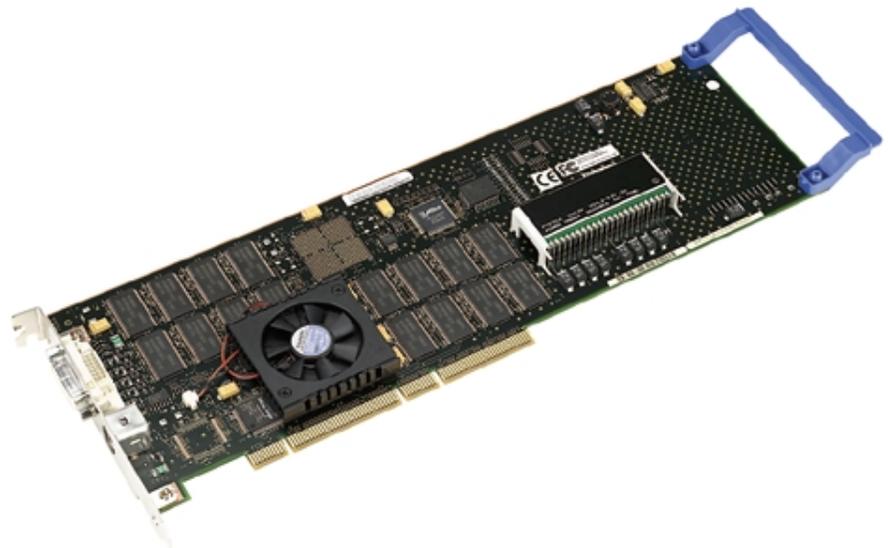
Offers popular features such as multiple hardware color maps, gamma corrected anti-aliased lines and up to 108MB of texture memory

Continues industrial-strength design tradition with native hardware support for both OpenGL and graPHIGS APIs

Increased 3D productivity

Designers and engineers—particularly in aerospace, automotive and petroleum companies—require high levels of graphics performance and productivity to help them become more cost-effective and competitive in their time to market.

With the continuing advancement of MCAD design software into higher realms of complexity, the demand for a solid, dependable and highly functional graphics accelerator for the entry 3D space has grown dramatically. The POWER GXT4000P Graphics Accelerator brings a new level of productivity



to IBM UNIX® workstation users with advanced functionality and enhanced performance at an affordable price.

The GXT4000P meets the needs of the value-oriented, mission-critical and intensive 3D workstation user. It is designed to support the large models that are often encountered in the most demanding application areas, such as MCAD, MCAE and petroleum.

Advanced graphics functions

The GXT4000P is implemented with innovative, advanced technology. A portion of the graphics pipeline is implemented in software, running on one or more RS/6000® workstation processors, and using the advanced capabilities of the POWER3-II copper-based architecture to manipulate geometry data. An IBM-designed ASIC, a single-chip raster engine, defines the pixel image using texture maps, alpha buffers, overlays, stencils, color maps and anti-aliasing.

The PCI interface of the chip accepts stream graphics commands and passes them to the on-chip setup block. The setup circuits calculate values for interpolating lines, smooth shaded polygons and texture maps.

An interface to the lightning-fast, double-data-rate SDRAM video memory residing on the adapter provides access to the unified frame buffer, which includes texture memory. From the setup block, the graphics elements are passed to the rasterizer section for text, line and polygon interpolation, blending, shading and texturing. The result is a dazzling display of application data on displays with up to 1920 x 1200 pixels.

Reduced complexity

The hardware design of the GXT4000P provides native support for the primitives required by both the OpenGL application programming interface (API) and the IBM graPHIGS implementation of the PHIGS API.

This means that regardless of the API chosen by the software developers to implement the graphics calls of a given application, native hardware support is available to implement the subroutine calls without any cumbersome translation libraries or software workarounds.

Examples of specific API-oriented hardware include capabilities such as 3D textures and display list processing for OpenGL 1.2 and scissoring and multiple color tables for graPHIGS.

New level of interactivity

When configured as a part of a 64-bit RS/6000 44P Model 170 workstation, the GXT4000P delivers the enhanced performance and advanced functions required by most designers and engineers. The combination of the GXT4000P and the 64-bit RS/6000 44P Model 270 workstation, which supports a one- to four-way symmetric multiprocessor (SMP) design, creates an attractive analysis workstation with the memory bandwidth and floating-point performance that brings a new level of interactivity to MCAE, petroleum and scientific applications.

Designed as a unified frame buffer, the GXT4000P frame buffer provides the ability under software control to dynamically reconfigure the buffer to support various requirements. This allows allocation of frame buffer memory to enhance a specific function, such as higher screen resolution or greater texture memory, in preference to another function.

The GXT4000P is the right choice for value-oriented users requiring exceptional graphics performance and advanced function in the same graphics accelerator. Whether designing an airfoil or a front fender, or perhaps animating a fly-through of a fuselage or an oil field, the GXT4000P provides the graphics power and speed that users demand.

The IBM advantage

IBM graphics products are backed by our worldwide service and support. With our comprehensive array of products and services and unrivaled enterprise computing experience, IBM is the only company that can provide true end-to-end support, including industry-leading hardware and software, installation, maintenance, consulting and implementation services, education and training as well as attractive financing.

For more information

To learn more about the POWER GXT4000P Graphics Accelerator, contact your IBM representative, IBM Business Partner or visit the following Web sites:

- ibm.com/servers/unix
- ibm.com/rs6000/hardware/adapters/graphics/
- ibm.com/ibmlink

POWER GXT4000P at a glance

Supported RS/6000 models

- RS/6000 44P Models 170 and 270
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Hardware Specifics**Slots needed**

- Single card—one slot

Color support

- 16.7 million concurrent colors, four independent hardware color maps

Frame buffer

- 128MB Unified Frame Buffer with standard configuration as follows:
 - eight- or 24-bit double-buffered color
 - eight-bit double-buffered alpha
 - 24-bit Z-buffer
 - four-bit stencil planes
 - eight-bit overlay
 - eight-bit window ID
-

Advanced 3D features supported in hardware

- Hidden line and surface removal, hardware occlusion culling
 - Gamma corrected anti-aliased lines
 - Advanced texture mapping, including dual textures and 3D textures
 - Linear, bilinear, and trilinear texture filtering
 - Up to 108MB of texture memory
 - Gouraud shading, depth cueing/fog, transparency
 - Four hardware color maps
 - Supports screen resolution up to 1920 x 1200 at 76 Hz
 - Double-buffered stereo viewing in a window (up to 1280 x 1024)
 - Video scaling, color space conversion
 - DDC2B support, ISO 9241 compliant
 - P-buffer support
 - Texture color tables
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Software requirements

- AIX® Version 4.3.3
 - OpenGL and graPHIGS APIs are included with AIX
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