IBM®

IBM RS/6000 POWER GXT6000P and GXT4000P Graphics Accelerators Designed To Deliver Improved Performance

Overview

The GXT6000P and GXT4000P form the basis of a new family of graphics accelerators in support of RS/6000® workstations.

These two new products are based on a high-performance raster engine, which is the result of a new design implemented in state-of-the-art IBM chip technology.

GXT6000P

The GXT6000P, with its hardware geometry accelerator chip implemented in the new copper technology, supports the higher performance requirements of the more demanding user of advanced 3D workstations.

GXT4000P

The GXT4000P is designed to meet the price/performance needs of the value-oriented market for entry 3D workstations.

These new graphics accelerators, when configured in the RS/6000 Power3-II-based workstations, provide an excellent combination of function and performance for complex and demanding graphics applications in areas such as:

- Mechanical Computer Aided Design (MCAD) and Engineering (MCAE) for automotive and aerospace

- Petroleum exploration and production

- Scientific visualization

- Other technical design and visualization

The GXT6000P and GXT4000P provide native support in hardware for both the OpenGL and IBM graPHIGS application programming interfaces, resulting in unmatched flexibility of support for application software, regardless of the graphics API chosen for implementation.

The GXT4000P and GXT6000P accelerators are full-length PCI adapters that are supported for installation in a 64-bit PCI bus slot of the RS/6000 7044P Models 170 and 270 and 7043 Model 270 upgrade, but can also fit in a 32-bit slot of these systems.

Advanced functionality of both accelerators over previous RS/6000 graphics products include:

- 128 MB Unified Frame Buffer

- Advanced, highly accelerated texture mapping

- Resolutions up to 1920 x 1200 (HDTV format) at 76 Hz

The new rasterizer on both graphics subsystems:

- Manages the bus

- Draws lines, characters, and smooth shaded polygons

- Provides very advanced texture mapping for very high visual image quality

- Streams the raster information from the large frame buffer to analog displays

Key Prerequisites

- RS/6000 PCI System 7044 Models 170 and 270 and 7043 Model 270 upgrade

- AIX® Version 4.3.3, or later

- Either or both 3D APIs, OpenGL, or graPHIGS, included with AIX Version 4.3.3

Planned Availability Date

December 8, 2000

At a Glance

The pacesetting capabilities of the GXT6000P and GXT4000P are driven by advanced electronics design throughout, resulting in some of the most advanced computer graphics ever produced for design and visualization.

POWER GXT6000P

- Mid-range, 3D 64-bit PCI graphics accelerator

- Attachment via a single 64-bit or 32-bit PCI bus slot

- Native support for OpenGL and graPHIGS 3D APIs

- Advanced 3D texture mapping

- High performance geometry engine on board

POWER GXT4000P

- Entry, 3D 64-bit PCI graphics accelerator

- Attachment via a single 64-bit or 32-bit PCI bus slot

- Native support for OpenGL and graPHIGS 3D APIs

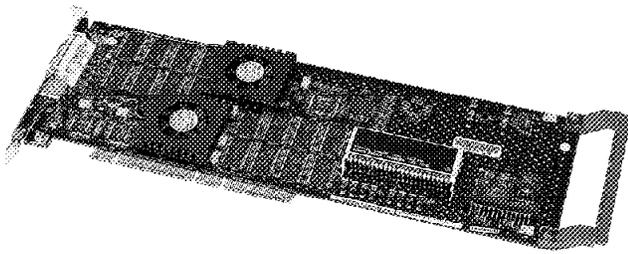- Advanced 3D texture mapping

For ordering, contact:
Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at

| 800-IBM-CALL | Reference: RE001 |

Description

GXT6000P

The GXT6000P, with its hardware geometry acceleration:

- Supports the higher performance requirements of the more demanding user of advanced 3D workstations.

- Provides the highest level of graphics performance available for the RS/6000 workstations.

- Delivers significant advances in performance as measured by the Graphics Performance Characterization (GPC) benchmarks and, more importantly, within MCAD and MCAE applications.

  In some benchmarks, for certain environments the GXT6000P more than doubles the speed of previous IBM graphics products.

In the GXT6000P, the geometry engine performs very high precision transformations on geometric models and provides clipping and multisource lighting.

The IBM Power GXT6000P Graphics Accelerator is a 64-bit mid-range 3D PCI Graphics adapter for the RS/6000 Models 7044-170 and 7044-270 and 7043-270 upgrade. This adapter has the following base features:
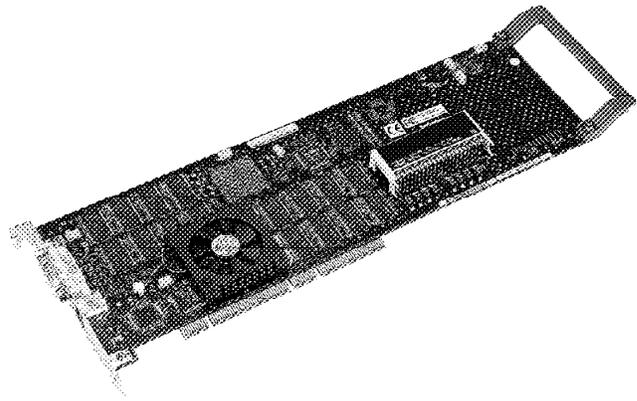
- 128MB Unified Frame Buffer
  - 24-Bit Double Buffered up to 1920 x 1200
  - 24-Bit Quad Buffered Stereo up to 1280 x 1024
  - 24-Bit Z-Buffer
  - 4/8-Bit Overlay
  - 8-Bit Double Buffered Alpha
  - 8-Bit Stencil/Clip Planes
  - 8 Windows™ ID bits
- 1 Rectangular Scissor Region
- 5 HW Rectangular Clippers
- Texture Mapping:
  - Up to 108 MB Texture Memory (1280 x 1024)
  - Dual Texture
  - 3D Texture
  - Texture Color Table
- Video Support:
  - Bilinear Scaling
  - Color Space Conversion
- 4 Hardware Color Maps
- Gamma Corrected AA Lines
- Full OpenGL/graPHIGS Geometry Accelerator
- HW Occlusion Culling

API Support:

- X11
- GraPHIGS
- OpenGL 1.2

Monitor Support:

- Resolutions Supported:
  - 1280 X 1024 @ 85Hz
  - 1600 X 1200 @ 85Hz
  - 1920 X 1200 @ 76Hz
- DDC2B Support
- ISO 9241-Compliant

GXT4000P

The GXT4000P:

- Is designed to meet the price/performance needs of the value-oriented market for entry 3D workstations.

- Shows significant improvement over previous IBM graphics accelerators, while providing a very attractive price point.

The IBM Power GXT4000P Graphics Accelerator is a 64-bit entry 3D PCI Graphics adapter for the RS/6000 Models 7044-170 and 7044-270 and 7043-270 upgrade. This adapter has the following base features:

- 128 MB Unified Frame Buffer
  - 24-bit Double Buffered up to 1920 x 1200
  - 24-bit Quad Buffered Stereo up to 1280 x 1024
  - 24-bit Z-Buffer
  - 4/8-bit Overlay
  - 8-bit Double Buffered Alpha
  - 8-bit Stencil/Clip Planes
  - 8 Windows ID bits
- 1 Rectangular Scissor region
- 5 HW Rectangular Clippers
- Texture Mapping:
  - Up to 108 MB Texture Memory (1280 x 1024)
  - Dual Texture
  - 3D Texture
  - Texture Color Table
- Video Support:
  - Bilinear Scaling
  - Color Space Conversion
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API Support:

- X11
- GraPHIGS
- OpenGL 1.2

Monitor Support:

- Resolutions Supported:
  - 1280 x 1024 @ 85 Hz
  - 1600 x 1200 @ 85 Hz
  - 1920 x 1200 @ 76 Hz
- DDC2B Support
- ISO 9241-Compliant

Year 2000

These products are Year 2000 ready. When used in accordance with their associated documentation, they are capable of correctly processing, providing, or receiving date data within and between the twentieth and twenty-first centuries, provided that all products (for example, hardware, software, and firmware) used with the products properly exchange accurate date data with them.

Euro Currency

These products are not impacted by euro currency.

Product Positioning

Power GXT6000P

The Power GXT6000P is the highest performing IBM graphics accelerator available for the RS/6000. It replaces the GXT3000P on 7044 Model 170 and 270 and 7043-270 upgrade. The GXT6000P, coupled with the 7044 Model 170 450 MHz system, delivers its highest graphics workstation performance. The 7044 Model 270 2-way with the GXT6000P also provides very good CATIA performance if MCAE and other multiprocessor applications are used.
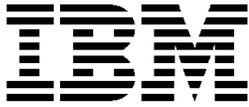
Power GXT4000P

The POWER GXT4000P is the second highest performing IBM graphics accelerator available for the RS/6000. It replaces the GXT3000P and GXT2000P on 7044 Model 170 and 270 and 7043-270 upgrade. The GXT4000P, coupled with the 7044 Model 170 450 MHz system, delivers its highest graphics workstation performance; however, GXT4000P, with Model 170 333 MHz and 400 MHz-based systems, delivers the best price/performance.

Publications

The *POWER GXT4000P and POWER GXT6000P Graphics Adapter Installation and Using Guide* (SA23-1236) is shipped.

You can view or print publications from the RS/6000® Install Options section of the RS/6000 System Books Web site at:

http://www.rs6000.ibm.com/resource/hardware_docs/

The Publication Notification System (PNS) is available by order number. Customers who currently subscribe to PNS receive publication updates automatically.

The Publication Notification System (PNS) is available at:

http://www.ibm.com/shop/publications/pns/

Technical Information

Physical Specifications: Both adapters are packaged on standard single-slot PCI cards.

Operating Environment: The PCI interfaces are 64-bit, up to 66 MHz and 3.3 Volts.

Hardware Requirements

- RS/6000 PCI System 7044 Model 170 and/or Model 270

Software Requirements

- AIX® Version 4.3.3, or later
- Either or both 3D APIs, OpenGL, or graPHIGS, included with AIX Version 4.3.3

Planning Information

Cable Orders: The following chart shows the cable feature to graphics accelerator reference. Check your specific system model to determine which graphics accelerators are supported on which model.

Display Cable Feature Number Matrix

DISPLAYS	GXT150M (TM) (13W3)	GXT500P/ GXT550P (13W3/DDC)	GXT1000 (13W3)	7250 (13W3)
G52 (1)	NS	NS	NS	NS
P50 (1)	4213 (2)	4213	NS	NS
P70	4234	4240	4234	4234
P200	4234	4240	4234	4234
P201	4234	4241	4234	4234
P72 (1)	4213 (2)	4213 (3)	NS	NS
P92 (4)	4234	4213 (3)	4234	4234
P202 (4)	4234	4213 (3)	4234	4234
P76 (1)	4213 (2)	4213 (3)	NS	NS
P260 (5)	4213 (2)	4213 (3)	NS	NS
6091–19I	4214	4219	3252	3252 (6)
POWERDP17	4214	4219	3253	3253 (6)
POWERDP20	4214	4219	3253	3253 (6)
9516–B03	4214	4214	4214	4214
9516–B23	4214	4214	4214	4214
9513–AW1	NS	4213	NS	NS
9513–AG1	NS	4213	NS	NS
9519–AW1	NS	4213	NS	NS
9519–AG1	NS	4213	NS	NS
9497–Axx	NS	NS	NS	NS

	GXT120P/ GXT130P/ GXT110P (15D/DDC)*	GXT250P/ GXT255P (15D/DDC)	GXT800M/ GXT800P (15D/DDC)	GXT300P GXT2000P GXT3000P (15D/DDC)
G52 (1)	Display	NS	NS	NS
P50 (1)	Display	Display	Display	Display
P70	4238	4238	4238	4238
P200	4238	4238	4238	4238
P201	4237	4237	4237	4237
P72 (1)	Display	Display	Display	Display
P92 (4)	Display	Display	Display	Display
P202 (4)	Display	Display	Display	Display
P76 (1)	Display	Display	Display	Display
P260 (5)	Display	Display	Display	Display
6091–19I	NS	4239	4239	4239 (7)
POWERDP17	4217	4239	4239	4239 (7)
POWERDP20	4217	4239	4239	4239 (7)
9516–B03	4217	4217	4217	4217
9516–B23	4217	4217	4217	4217
9513–AW1	Display	Display	NS	NS
9513–AG1	Display	Display	NS	NS
9519–AW1	Display	NS	Display	Display
9519–AG1	Display	NS	Display	Display
9497–Axx	Display **	NS	NS	Display

	GXT4000P GXT6000P (DVI/DDC)(8)			
G52 (1)	NS			
P50 (1)	NS			
P70	4238			
P200	4238			
P201	4237			
P72 (1)	Display			
P92 (4)	Display			
P202 (4)	Display			
P76 (1)	Display			
P260 (5)	Display			
6091–19I	NS			
POWERDP17	NS			
POWERDP20	NS			
9516–B03	4217			
9516–B23	4217			
9513–AW1	NS			
9513–AG1	NS			
9519–AW1	Display			
9519–AG1	Display			
9497–ALL	Display			
9497–Axx	Display			
9497–Dxx	Display			

```
Notes
  NS = Not Supported — This display/adapter
  combination is not supported.
  Display — The appropriate cable is included with
  the display.
  (1) Captured 15–pin D–shell cable
  (2) An ID bit adapter is required (P/N 21L4522)
      when attaching to the GXT150M.
  (3) 4213 adapter connects the 15–pin D–shell cable
      to the 13w3 connector on the adapter.
  (4) Dual input has a 13W3 and a 15–pin D–shell
      connectors on monitor.
  (5) Dual input both 15–pin D–shell connectors on
      monitor.
  (6) Order under machine type 7250
  (7) FC #4239 (3 BNC cable) is recommended on
      GXT2000P and GXT300P FC #4217 is a 5BNC cable
      (external in H and V sync)
  (8) Must use DVI to 15–pin D–shell converter
      supplied with the GXT6000P or GXT4000P.
  * Feature number 4242 is a 6–foot extension display
    cable that allows a monitor with a 15–pin D–shell
    connector to be farther away from the graphics
    accelerator than its attached cable allows.  Ship
    this cable with rack–based systems.
 ** = GXT130 only
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Security, Auditability, and Control

These products use the security and auditability features of host software and application software.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

Terms and Conditions

Feature Section

This product is available for purchase under the terms of the IBM Customer Agreement (ICA).

IBM hardware products are manufactured from new parts and used parts. In some cases, the hardware product may have been previously installed. Regardless, IBM's warranty terms apply.

MES Discount Applicable: Equal to the volume commitment discount

Field Installable Feature: Yes

Warranty Period: One year

Customer Setup: Yes

Licensed Internal Code: Same license terms and conditions as designated machine.

Prices

Machine Type/Model	Feature Number	Purchase Price	Initial/ MES/ Both/ Support
POWER GXT4000P Graphics Accelerator			
7043-270	2826	$2,995	MES
POWER GXT6000P Graphics Accelerator			
7043-270	2827	6,500	MES
POWER GXT4000P Graphics Accelerator			
7044-170	2826	2,995	Both
7044-270		2,995	Both
POWER GXT6000P Graphics Accelerator			
7044-170	2827	6,500	Both
7044-270		6,500	Both

ServiceSuite and ServiceElect Maintenance Charges: There are no monthly maintenance charges for the features in this announcement.

Order Now

Use Priority/Reference Code: RE001

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You can also contact your local IBM Business Partner or IBM representative. To identify them, call 800-IBM-4YOU.

Note: Shipments will begin after the planned availability date.

Year 2000 Readiness Disclosure

Statements made in this announcement regarding Year 2000 are **"***Year 2000 Readiness Disclosures***"** *under the Year 2000 Information and Readiness Disclosure Act of 1998, a U.S. statute enacted on October 19, 1998.*