

**POWER GXT120P Graphics PCI Adapter
Installation and User's Guide**

Note

Before using this information and the product it supports, be sure to read the general information under "Product Warranties and Notices" included with your system unit.

First Edition (October 1997)

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Safety Information

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communication lines.

Handling Static Sensitive Devices

Attention: Static electricity can damage this device and your system unit. To avoid damage, keep this device in its static protective bag until you are ready to install it. To reduce the possibility of electrostatic discharge, follow the precautions listed below.

Electrostatic Discharge Protection

To prevent electrostatic discharge:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- While the device is still in its anti-static package, touch it to an unpainted metal part of the system unit for at least two seconds. (This drains static electricity from the package and from your body.)
- Remove the device from its package and install it directly into your system unit without setting it down. If it is necessary to set the device down, place it on its static-protective package. (If your device is an adapter, place it component side up.) Do not place the device on your system unit cover or on a metal table.
- Take additional care when handling devices during cold weather as heating reduces indoor humidity and increases static electricity.

About This Book

Use this book with your system unit documentation to install the POWER GXT120P and its associated device driver software.

Related Publications

This book refers to the documentation that came with your system unit and with your operating system. Additional references are made to adapter (slot) placement documentation.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Trademarks

AIX is a registered trademark of International Business Machines Corporation.

POWER GXT120P is a trademark of International Business Machines Corporation.

PowerPC is a trademark of International Business Machines Corporation.

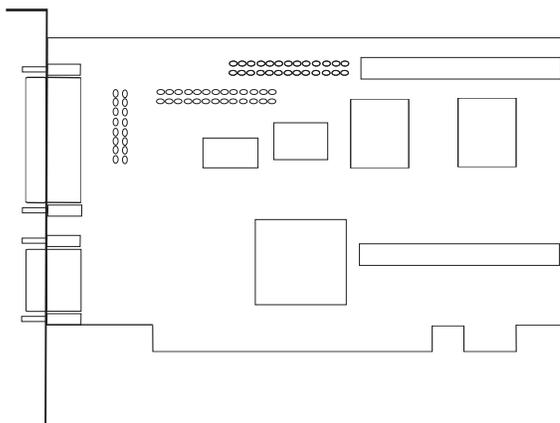
Chapter 1. Overview

The POWER GXT120P is a high-performance PCI graphics adapter that accelerates and enhances your system unit video. POWER GXT120P has no hardware switches to set. Mode selection is made via the software. Connection to the video monitor is made through a high density 15 pin D-shell connector.

Important: Retain your proof of purchase for warranty service.

Specific Hardware Characteristics

POWER GXT120P



- 2MB EDO DRAM
- 32-bit PCI bus interface
- 8-bit color support
- Screen resolutions:
 - 640x400 at 60 - 85 Hz vertical refresh
 - 800x600 at 60 - 85 Hz vertical refresh
 - 1024x768 at 60 - 85 Hz vertical refresh
 - 1280x1024 at 60 - 75 Hz vertical refresh

Display Power Management

The POWER GXT120P supports Video Electronics Standards Association (VESA), Display Power Management Signalling (DPMS).

Software Requirements

The POWER GXT120P is supported on AIX 4.2 and 4.3. If support is required on another AIX release, please ensure this adapter is supported on that release prior to install. Contact your support representative for assistance.

Chapter 2. Preparing for Installation

This section outlines the installation process for the POWER GXT120P device driver and graphics adapter.

The process includes:

- An inventory of installation materials.
- The installation of your device driver software.
- The installation of your graphics adapter.

Note: If AIX is not installed on your system unit, install your graphics adapter before you install the operating system. (See Chapter 4, “Installing Hardware” on page 4-1.) When you install AIX, your device driver software will automatically install.

If AIX is operating on your system, install your device driver software prior to installing your graphics adapter. (See Chapter 3, “Installing Device Driver Software” on page 3-1.)

Inventory

To install the POWER GXT120P, you need:

- The adapter.
- This documentation, *The POWER GXT120P Graphics Adapter Installation and User's Guide*.
- The operating system documentation.
- The system unit User's Guide.
- *PCI Adapter Placement Reference*.
- A flat-blade screw driver.
- Media containing device driver software.

Chapter 3. Installing Device Driver Software

This section explains how to install device driver software.

AIX Device Driver Software Installation

1. Be sure you have read Chapter 2, “Preparing for Installation” on page 2-1.
 - Determine if you should install your device driver software first.
 - Determine if you should install your graphics adapter hardware first.
 - If you should install your device driver software first, go to step 2 and continue with this section.
 - If you should install your hardware first, go to Chapter 4, “Installing Hardware” on page 4-1. When you install AIX, your device driver automatically installs.
2. Turn the system unit power on.
3. Log in as **root**.
4. Insert the media containing the device driver software (example: CD-ROM) into the appropriate media device.
5. Type the following

```
smit devinst
```

and press Enter.
6. The Install Additional Device Software screen highlights the **INPUT device/directory for software** option.
7. Select or type *your input device*:
 - Press **F4** to display the input device list. Select the *name of the device* (example: CD-ROM) that you are using and press Enter.
-- or --
 - In the Entry Field, type the *name of the input device* you are using and press Enter.
8. The Install Additional Device Software window highlights the **SOFTWARE to install** option.
9. Press **F4** to display the SOFTWARE to install window.

10. Type the following to display the Find window:

/

11. Type the following

`devices.pci.2b101a05`

and press Enter. (The system finds and highlights this device driver software.)

Example: 4.2.1.0 `devices.pci.devices`

Example: 4.3.0.0 `devices.pci.devices`

12. Press **PF7** to select the device software and press Enter.

13. The Install Additional Device Software screen displays. Entry data fields are automatically updated. Press Enter to accept the data.

14. The ARE YOU SURE window displays. Press Enter to accept the data.

15. The **COMMAND STATUS** screen appears.

- The term **RUNNING** is highlighted to indicate that the install and configure command is in progress.
- When **RUNNING** changes to **OK**, scroll down to the bottom of the page and locate the Installation Summary.
- After a successful installation, **SUCCESS** will appear in the Result column of the summary at the bottom of the page.

16. Remove the installation media from the drive.

17. Press **F10** to exit SMIT.

18. Go to graphics adapter install procedure, Chapter 4, "Installing Hardware" on page 4-1.

Chapter 4. Installing Hardware

This section provides the guidance necessary to install a graphics adapter. Before you begin, be sure you have read “Handling Static Sensitive Devices” on page vii.

Attention: Do not remove the POWER GXT120P from its anti-static package at this time.

Installing the Adapter

1. Be sure you have read Chapter 2, “Preparing for Installation” on page 2-1.
 - Determine if you should install your graphics adapter hardware first.
 - Determine if you should install your device driver software first.
 - If you should install your graphics adapter hardware first, go to 2 and continue with this section.
 - If you should install your device driver software first, go back to Chapter 3, “Installing Device Driver Software” on page 3-1. Return here to install your hardware.
2. Refer to the User's Guide that shipped with your system unit to perform the following:
 - Shutdown your system unit.
 - Install the graphics adapter in your system unit.

Refer to the *PCI Adapter Placement Reference* to identify supported installation slots for a POWER GXT120P. Return here to complete the process.

Attention: Failure to install your graphics adapter in the correct slot may cause your adapter or system unit to function incorrectly.
3. After the basic installation is complete, connect your keyboard and mouse to the system unit and connect your video cable to the graphics adapter.
4. Turn on both your system unit and your display. Follow any instructions on the screen.
5. A **select display** (console) **icon** appears on your screen. Press the number key (for example, 1 or 2) on your keyboard of the monitor you want to be your default display.

Troubleshooting

Initial installation problems are often resolved using a few basic troubleshooting steps:

- Check Cables
- Check Installed Software (lslpp)
- Check Console (possibly redirect)
- Check Installed Hardware (lsdev)

Check Cables

1. Ensure your cables are connected to the correct adapter.
 - If you have more than one display adapter, be sure that each adapter is connected to a display.
 - Verify the cable connection to your video monitor is made through a high density 15 pin D-shell connector. (For detailed connector information, go to *Adapters, Devices, and Cable Information for Multiple Bus Systems* if you received this book with your system unit.)
2. If no login prompt appears, restart your system unit.
3. If still no login appears, reset your system to its original configuration and continue with the Troubleshooting verifications.

Verify Software Installation

1. Verify the device driver for the POWER GXT120P is installed.
 - Login as **root**
 - Type:

```
lslpp -l a11 | grep GXT120P
```

and press Enter.

2. If the GXT120P device driver is installed, the following is an example of the data that appears if you are running AIX Version 4.2.1 or 4.3.0.

```
devices.pci.2b101a05.X11 4.2.1.0 COMMITTED AIXwindows GXT120P Graphics
devices.pci.2b101a05.diag 4.2.1.0 COMMITTED GXT120P Graphics Adapter
devices.pci.2b101a05.rte 4.2.1.0 COMMITTED GXT120P Graphics Adapter
or
devices.pci.2b101a05.X11 4.3.0.0 COMMITTED AIXwindows GXT120P Graphics
devices.pci.2b101a05.diag 4.3.0.0 COMMITTED GXT120P Graphics Adapter
devices.pci.2b101a05.rte 4.3.0.0 COMMITTED GXT120P Graphics Adapter
```

3. If the POWER GXT120P device driver did not install, return to Chapter 3, "Installing Device Driver Software" on page 3-1.

Check Console

1. If you continue to experience problems, it may be necessary to redirect the device console to the new adapter using the `chdisp` command. Refer to your operating system documentation for directions.
2. If you have checked your cables, tried the `chdisp` command and continue to experience problems, run diagnostics. Refer to your operating system documentation for directions.

Verify Hardware Installation

1. To verify your system unit recognizes the POWER GXT120P adapter:
 - Type:
`lsdev -Cs pci`
and press Enter.
2. If the POWER GXT120P adapter did install, the following is an example of the data that appears on your screen:

```
mga0 Available 04-02 GXT120P Graphics Adapter
```
3. If the message on your screen indicates your adapter is Defined instead of Available, shut down your machine. Check the POWER GXT120P adapter to insure it is installed correctly.
4. If the POWER GXT120P adapter did not install, return to Chapter 4, "Installing Hardware" on page 4-1.

If you continue to experience problems, it may be necessary to call your system support organization.

Appendix A. Communications Statements

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

Note: The POWER GXT120P Graphics PCI Adapter has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from authorized dealers. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

International Business Machines Corporation
Old Orchard Road
Armonk, New York 10504
Telephone: (919) 543-2193

European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Canadian Department of Communications Compliance Statement

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

VCCI Statement

この装置は、第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。

しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因となることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

The following is a summary of the VCCI Japanese statement in the box above.

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

When used near a radio or TV receiver, it may become the cause of radio interference.

Read the instructions for correct handling.

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

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