

ESCALA

Gigabit Ethernet-SX PCI-X Adapter

Installation and Using Guide



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ESCALA

Gigabit Ethernet-SX PCI-X Adapter

Installation and Using Guide

Hardware

November 2002

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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 equipment. Leave the Gigabit Ethernet-SX PCI-X Adapter in its anti-static protective bag until you are ready to install it in your system unit

Electrostatic Discharge Protection

Take the following precautions whenever you handle the Gigabit Ethernet-SX PCI-X Adapter or other static devices:

- If you have an anti-static wrist strap, use it while handling the adapter.
- Limit your movement. Movement can cause static electricity to build up around you.
- While the adapter is still in its anti-static package, touch it to an unpainted metal part of the system unit, such as an expansion slot.
- Holding the adapter carefully by its edges. Avoid touching solder joints, pins, or other printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- Remove the adapter from its package and install it directly into the system unit. If it is necessary to set the device down, place it back into its static-protective package. Before you pick it up again, touch the bag and metal frame of the system unit at the same time.
- Be careful when you hand the adapter during cold weather, as low humidity and heating increase static electricity.

About This Book

This book provides information about the Gigabit Ethernet-SX PCI-X Adapter, how to install and configure the adapter, and how to attach the adapter to a network. Use this book together with your specific system unit and operating system documentation.

ISO 9000

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

Related Publications

The following publications contain related information:

- System unit documentation for information specific to your hardware configuration
- Operating system documentation for information specific to your software configuration
- *PCI Adapter Placement Reference Guide* (for the latest version, you may need to contact your marketing representative)

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- AIX
- AIX 5L

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Chapter 1. Overview

The Gigabit Ethernet-SX PCI-X Adapter is a high performance, highly integrated, universal, Ethernet LAN adapter for PCI-X and PCI systems. The adapter provides 1000 Mbps throughput on a standard shortwave (850 nm) 50/62.5 micron multimode optical cable and conforms to the IEEE 802.3z standards and supports distances of 260 meters for 62.5u MMF and 550 meters for 50.0u MMF.

The adapter runs in standard PCI-X V1.0a compliant systems with 32/64-bit PCI-X Bus Master slots at 66/133 MHz, as well as PCI 2.2 compliant systems with 32/64-bit PCI bus master slots at 33/66 MHz.

The Gigabit Ethernet-SX PCI-X Adapter provides the following features:

- Support for 64 bit Direct Bus Mastering on the PCI/PCI-X bus
- Uses a shared memory structure in host memory and copies data directly from and to host memory
- Supports Boot ROM
- 1000 Mbps Full Duplex throughput on standard 50u or 62.5u MMF optical cable
- IEEE 802.3z 1000 Base-SX compliant
- Supports Dual address cycle for access to 64-bit addresses
- Supports 64-bit addressing for systems with greater than 4 GB of physical memory
- Supports PCI-X split transactions
- Surface mount technology (SMT)
- LC physical connector

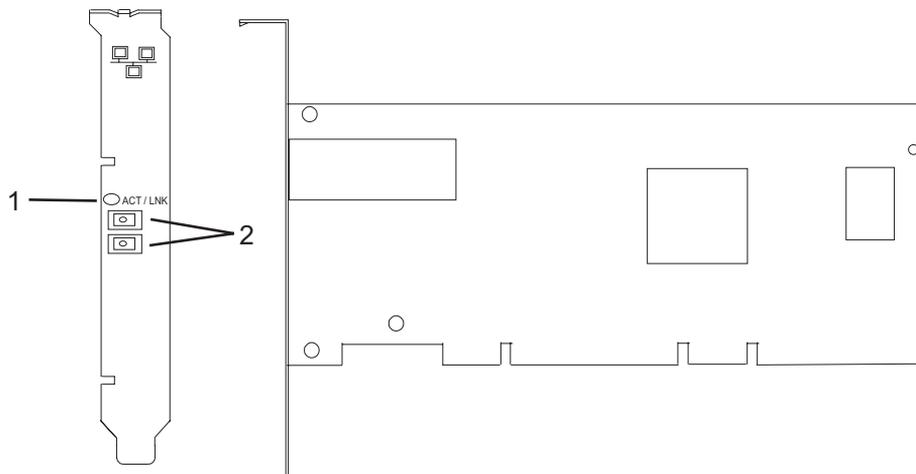


Figure 1. Gigabit Ethernet-SX PCI-X Adapter

1. LED
2. Multimode Fiber LC Receptacle

Chapter 2. Preparing for Installation

This chapter helps you prepare to install your Gigabit Ethernet-SX PCI-X Adapter. Preparing to install the adapter involves the following tasks:

- Verifying your hardware requirements
- Verifying your software requirements
- Making sure your package is complete
- Gathering tools and documentation

Note: If you are installing your operating system at this time, install the adapter before you install the operating system (see “Installing the Adapter” on page 9 for instructions).

If you are installing only the device driver for this adapter, install the device driver before you install the adapter. (See Chapter 3, “Installing the Device Driver Software” on page 5 for instructions.)

Verifying Your Hardware Requirements

The Gigabit Ethernet-SX PCI-X Adapter requires the following hardware:

- ___ A wrap plug for the multimode fiber connector, if you are running the total diagnostics package
- ___ Shortwave (850 nm) 50/62.5 micron multimode fiber network attachment

The following table shows the minimum and maximum allowable cable lengths from the adapter to the gigabit Ethernet switch, including patch cables:

Fiber Type	Modal bandwidth (MHz-km)	Minimum range (meters)	Maximum range (meters)
62.5 µm MMF	160	2	220
62.5 µm MMF	200	2	275
50 µm MMF	400	2	500
50 µm MMF	500	2	500

Verifying Your Software Requirements

The Gigabit Ethernet-SX PCI-X Adapter is supported on AIX 5L for POWER version 5.1.35 with the 5100-03 Recommended Maintenance package (APAR IY32749) and later. Ensure that your operating system supports this adapter before you install it. Contact your support representative for assistance.

Checking Your Package

Check that the package contains the following items:

- ___ The Gigabit Ethernet-SX PCI-X Adapter
- ___ AIX device driver CD-ROM
- ___ Wrap plug
- ___ A registration card

Contact the place of purchase if an item is missing or damaged.

Note: Be sure to retain your proof of purchase as it might be required to receive warranty service.

Gathering Tools and Documentation

To install the adapter, you need the following items:

- ___ A flat-blade screwdriver
- ___ Your system unit documentation, including any service manual
- ___ Your operating system documentation

Chapter 3. Installing the Device Driver Software

This chapter explains how to install the device driver for the Gigabit Ethernet-SX PCI-X Adapter on an AIX system. The device driver is provided for the AIX operating system.

Be sure you have read Chapter 2, “Preparing for Installation” on page 3 to determine:

- If you should install your device driver software first, go to step 1 and continue with this section.
- If you should install your adapter hardware first, go to Chapter 4, “Installing the Gigabit Ethernet-SX PCI-X Adapter” on page 9. When you install AIX, your adapter device driver automatically installs.

If your installed AIX operating system (AIX 5.1.35 and later) supports the Gigabit Ethernet-SX PCI-X Adapter, the device driver is already installed and you can install the adapter. Go to “Installing the Adapter” on page 9 for instructions.

To install the device driver software software, do the following:

1. Turn on the system unit power.
2. At the system prompt, log in as a **root** user.
3. Insert the media containing the device driver software into the appropriate media device.

If your system does not have a CD-ROM drive, refer to your system documentation for performing a NIM (Network Installation Management)

4. To start SMIT, type:

```
smitty devinst
```

Press Enter. The Install Additional Device Software panel displays. The **INPUT device/directory for software** option is highlighted for selection.

5. Press F4 to display a list of input devices from which you can select. The cursor is already positioned on the input entry field.
6. Either type the name of the input device in the entry field or select the appropriate device, then press Enter. The Install Additional Device Software panel displays the device you selected in the **INPUT device/directory for software** field. The **.SOFTWARE to install** option is highlighted.
7. Press **F4** to display a list of the device packages you can install.
8. To display a Find dialog box, type:

```
/
```

in the field where the cursor is positioned.

9. Type the following device package name:

```
devices.pci.14106802
```

Press Enter.

10. Press F7 to select the device package name, then press Enter. The Install Additional Device Software panel displays the completed required fields.
11. Press Enter. The **ARE YOU SURE** list displays.
12. Press Enter. The COMMAND STATUS panel displays. The term RUNNING is highlighted, indicating that the software is being installed.
13. When RUNNING changes to OK, scroll down to the bottom of the panel and locate the Installation Summary. If the installation was successful, SUCCESS appears at the bottom of the panel in the Result column of the Installation Summary.
14. Remove the device driver software media from the media device.
15. Press F10 to exit SMIT.
16. To shut down your system, type:

```
shutdown -F
```

Press Enter.
17. Go to “Installing the Adapter” on page 9.

Verify AIX Software Installation

To verify that the device driver for the Gigabit Ethernet-SX PCI-X Adapter is installed, do the following:

1. If necessary, log in as **root** user.
2. At the command line, type:

```
lsllp -l devices.pci.14106802.rte
```
3. Press Enter.

Possible results are as follows:

- If the Gigabit Ethernet-SX PCI-X Adapter device driver is installed, the following is an example of the data that displays on your screen:

Fileset	Level	State	Description
Path: /usr/lib/objrepos devices.pci.14106802.rte	5.1.35	COMMITTED	...Ethernet... Adapter Software
Path: /etc/objrepos devices.pci.14106802.rte	5.1.35	COMMITTED	...Ethernet... Adapter Software

Verify that the filesets **devices.pci.14106802.rte** are installed at the AIX 5L for POWER version 5.1.35 with the 5100-03 Recommended Maintenance package (APAR IY32749) level or later.

If this information displays but you continue to have problems, go to Chapter 4, “Installing the Gigabit Ethernet-SX PCI-X Adapter” on page 9.

- If no data displays on your screen, the Gigabit Ethernet-SX PCI-X Adapter device driver did not install correctly. Return to Chapter 3, “Installing the Device Driver Software” on page 5. Return to “Verifying the Installation” on page 9 and continue with step 1 again.

If you continue to experience problems, it may be necessary to call your system support organization. Refer to your operating system documentation for instructions.

Chapter 4. Installing the Gigabit Ethernet-SX PCI-X Adapter

After you install the device driver, you can install the Gigabit Ethernet-SX PCI-X Adapter. This chapter takes you through the steps of installing your Gigabit Ethernet-SX PCI-X Adapter which involves the following tasks:

- Installing the adapter in your system unit
- Verifying installation
- Running adapter diagnostics

Installing the Adapter

Before you begin, be sure to read the “Electrostatic Discharge Protection” on page vii and Chapter 2, “Preparing for Installation” on page 3.

To install the adapter, do the following:

1. If your system supports hot-pluggable PCI adapters, refer to your system documentation to install the adapter and return to “Verifying the Installation”. If your system does not support hot plugging, continue with the next step.
2. Log in as a **root** user and type:
shutdown

at the system prompt and press Enter. When halt completed displays, turn off the system unit power and unplug the power cord from the wall outlet.

Note: Refer to your system unit documentation for further shutdown information.

3. Remove the covers of your system unit. Follow the instructions provided in your system unit documentation.
4. Install the adapter into an available PCI slot in your system unit. See the instructions in your system unit documentation for installing PCI adapters. Refer to your *PCI Adapter Placement Reference* guide for slot locations.
5. Follow the directions provided in your system unit documentation to reinstall the covers of your system unit.
6. Plug the power cord back into the wall outlet.
7. Turn on the power to your system unit.

Note: It is recommended that you use a duplex cable with this adapter. If simplex cables must be used, it is recommended that the two cables be clamped together using a duplex clip, if available.

Verifying the Installation

See the instructions provided in your system unit documentation for verifying the successful installation of the adapter. To verify, type:

```
lshw -Cs pci
```

at the system prompt, then press Enter. A list of PCI devices displays. An Available status indicates the the adapter is installed and ready to use.

Running Adapter Diagnostics

Diagnostics are provided with the device driver software. If you must run diagnostics, refer to your system unit documentation for instructions.

Chapter 5. Connecting to an Ethernet Network

This chapter explains how to connect the adapter to the multimode fiber network.

Refer to your local procedures for information about connecting the Gigabit Ethernet-SX PCI-X Adapter to your Ethernet network.

Note: Only one type of network can be attached to the adapter card at one time.

Connecting the Network Cables and Adapter

Before you begin connecting the adapter, make sure you have the hardware listed in “Verifying Your Hardware Requirements” on page 3.

To connect the adapter to an multimode fiber network:

- ___ 1. Insert the male fiber LC connector of the fiber cable into the adapter LC connector.
- ___ 2. Insert the male fiber LC connector of the other end of the cable into the network switch.

Note: If your switch has an SC receptacle, you need an LC-SC convertor cable.

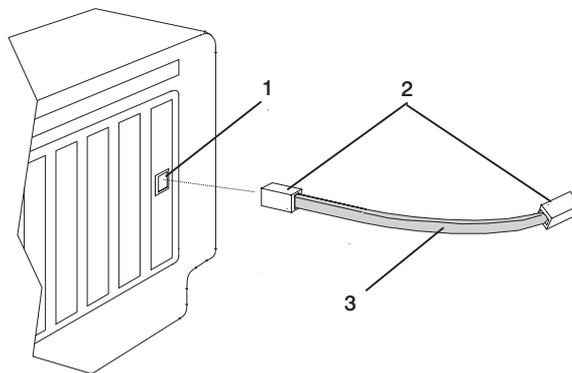


Figure 2. Connecting the Adapter to the Network

1. LC Fiber Optic Receptacle
2. LC Fiber Optic Plug
3. 62.5/50 MMF Cable

Understanding the Adapter LED

The LED on the Gigabit Ethernet-SX PCI-X Adapter provides information about the card's operation status. The LED is visible through the card's mounting bracket and, when lit, indicates the following conditions:

LED	Status
Off	No Link/No Activity
On (Green)	Link, No Activity
Flashing (Green)	Link, Activity

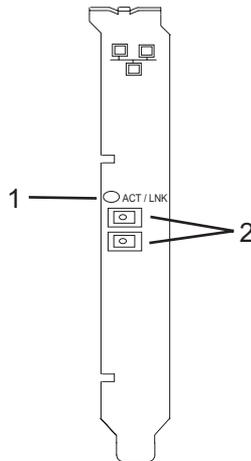


Figure 3. LED on the Gigabit Ethernet-SX PCI-X Adapter

1. LED
2. Multimode Fiber LC Receptacle

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: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer is 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.

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 A Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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 A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Canadian Department of Communications Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference—Causing Equipment Regulations.

VCCI Statement

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

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Electromagnetic Interference (EMI) Statement - Taiwan

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The following is a summary of the EMI Taiwan statement above.

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Radio Protection for Germany

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

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Appendix B. Notices

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