10/100/1000 Base-T Ethernet PCI Adapter

Installation and Using Guide

SA23-1231-00

Note

Before you install this product and use this information, be sure to read the product warranties and notices information included with the system unit into which you are installing the product.

First Edition (September 2000)

Before using this information and the product it supports, read the information in “Safety Information” on page v and “Appendix B. Notices” on page 23.

Contents

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 anti-static protective bag until you are ready to install it. To reduce the possibility of electrostatic discharge, follow the precautions listed below:

- 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 other 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

This book provides information about the 10/100/1000 Base-T Ethernet PCI Adapter, as well as 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)

Trademarks

The following term is a trademark of International Business Machines Corporation in the United States, other countries, or both:

- AIX
- RS/6000
- SP

Other company, product, and service names may be trademarks or service marks of others.

Chapter 1. Overview

The 10/100/1000 Base-T Ethernet PCI Adapter is a 32/64-bit high-performance expansion adapter card for systems adhering to the Peripheral Component Interconnect (PCI) 2.1 and IEEE 802.3ab and 802.3u standards. The adapter connects the system to an Ethernet LAN at a data rate of up to 1000 Mbps over CAT-5 UTP wiring for distances up to 100 meters.

The 10/100/1000 Base-T Ethernet PCI Adapter provides the following features:

- 33MHz through 66MHz PCI bus speeds
- 4 LED adapter status indicators for data and 10, 100 and 1000 Mbps indicators
- Full-duplex operation
- 1MB on-card FIFO for transmit and receive
- RJ-45 UTP Connector for Category-5 Copper Cabling
- Surface mount technology (SMT) and pin-in-hole technology (PIH)

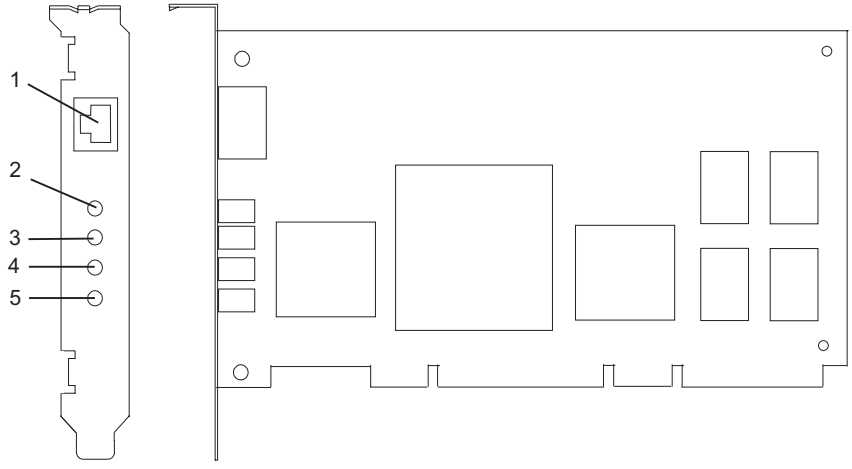

Figure 1. 10/100/1000 Base-T Ethernet PCI Adapter

1	RJ-45 Connector
2	Yellow LED (Data)
3	Green LED 1000 Mbps
4	Green LED 100 Mbps
5	Green LED 10 Mbps

Software Requirements

The 10/100/1000 Base-T Ethernet PCI Adapter is supported on AIX Version 4.3.3.25 or later. Ensure that your operating system supports this adapter before you install it. Contact your support representative for assistance.

Chapter 2. Preparing for Installation

This chapter helps you prepare to install your 10/100/1000 Base-T Ethernet PCI Adapter.

Note: If AIX is not installed on your system unit, install your adapter before you install the operating system (see “Chapter 5. Installing the 10/100/1000 Base-T Ethernet PCI Adapter” on page 13 for instructions).

If AIX is operating on your system, install your device driver software before you install the adapter. (See “Chapter 3. Installing the Device Driver Software” on page 5 for instructions.)

Verifying Your Hardware Requirements

The 10/100/1000 Base-T Ethernet PCI Adapter requires the following hardware:

- A wrap plug for the RJ-45 connector, if you are running the total diagnostics package
- Category 5 unshielded twisted pair (UTP) cables for 100/1000 Mbps network attachment

Note: The above cable can be no longer than 100 meters. Including patch cables, this is the maximum allowable cable length from the adapter to the local switch.

Checking Prerequisites

To install the 10/100/1000 Base-T Ethernet PCI Adapter, make sure you have the following on hand:

- The 10/100/1000 Base-T Ethernet PCI Adapter
- The operating system documentation
- The system unit documentation
- The *PCI Adapter Placement Reference* guide
- Wrap plug
- A flat-blade screwdriver
- Base AIX Operating System CD, which includes the device driver
- A registration card

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

Chapter 3. Installing the Device Driver Software

This chapter explains how to install device driver software. 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 5. Installing the 10/100/1000 Base-T Ethernet PCI Adapter” on page 13. When you install AIX, your adapter device driver automaticaly installs.

If your *installed* AIX operating system (4.3.3.25 or later) supports the 10/100/1000 Base-T Ethernet PCI Adapter and you already have a 10/100/1000 Base-T Ethernet PCI Adapter installed, the device driver is already installed and you can install the adapter. Go to “Chapter 5. Installing the 10/100/1000 Base-T Ethernet PCI Adapter” on page 13 for instructions. Otherwise, install the device driver.

To install device driver software, do the following:

1. Turn on the system unit power.
2. Log in as **root** user.
3. Insert the media containing the device driver software (for example; CD-ROM) 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) installation.
4. Type the following System Management Interface Tool (SMIT) fast path:

   ```
   smitty devinst
   ```
5. Press Enter. The Install Additional Device Software screen highlights the **INPUT device/directory for software** option.
6. Select or type *your input device:*
   - Press **F4** to display the input device list. Select the *name of the device* (for 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.

   The Install Additional Device Software window highlights the **SOFTWARE to install** option.
7. Press **F4** to display the SOFTWARE to install window.
8. Type the following to display the Find window::

   /
9. Type the following:

   ```
   devices.pci.14100401
   ```

10. Press Enter. The system finds and highlights this device driver software.
11. Press **F7** to select the highlighted device driver software.
12. Press Enter.
13. The INSTALL ADDITIONAL DEVICE SOFTWARE screen displays. The entry fields are automatically updated. Press Enter to accept the information.
14. The ARE YOU SURE window displays. Press Enter to accept the information.
15. The COMMAND STATUS screen displays.
    - The term `RUNNING` is highlighted to indicate that the installation and configuration command is in progress.
    - When `RUNNING` changes to `OK`, scroll to the bottom of the page and locate the Installation Summary.
    - After a successful installation, `SUCCESS` displays in the Result column of the Installation Summary at the bottom of the page.
16. Remove the installation media from the drive.
17. Press **F10** to exit SMIT.
18. Go to the adapter installation procedure, “Chapter 5. Installing the 10/100/1000 Base-T Ethernet PCI Adapter” on page 13.

Chapter 4. Installing the Device Driver on the RS/6000 SP System

For an SP system, the installation tasks must be performed on each node. You must make the installation files available and then install them on all the relevant nodes. This chapter discusses the following tasks to enable you to install the device driver on the RS/6000 SP System:

- Checking System Prerequisites
- Installing Software on the Control Workstation (*if* the device driver is not in the lppsource directory)
- Installing Device Drivers on the SP Nodes (*if* the device driver and additional software are not already installed)

Perform the following tasks on the Control Workstation. If you are unfamiliar with the **dsh** command, refer to one of the following Parallel System Support Program (PSSP) publications:

- *Parallel System Support Program for AIX: Administration Guide*
- *Parallel System Support Program for AIX: Command and Technical Reference*

If you cannot use the **dsh** command because of the setup at your site, then use the **telnet** command to each node. Then perform the steps below, beginning with step 5, and omitting the `dsh` prefix.

Checking System Prerequisites

Do the following to check system prerequisites:

__ 1. Log into the Control Workstation as a root user.

__ 2. Go to a temporary directory by typing the following at the system prompt:

```
cd /tmp
```

Press Enter.

__ 3. Make a ″working collective″ file containing a list of the relevant nodes on which you want to perform the update. Type the following, pressing Enter after each line:

```
cat > group1
nodename1
nodename2
nodename3......
CTRL-D
export WCOLL=/tmp/group1
```

__ 4. Test the working collective file by typing the following:

```
dsh date
```

Press Enter. The results should look similar to the following:

```
nodename1:   Wed Apr 10 10:37:46 EDT 1999
nodename2:   Wed Apr 10 10:37:46 EDT 1999
nodename3:   Wed Apr 10 10:37:47 EDT 1999
nodename4:   Wed Apr 10 10:37:48 EDT 1999
```

If not, examine your nodelist file **/tmp/group1** to ensure that the node names are correct. Also ensure that the Kerberos ticket is current to permit **rsh** to be performed. If not, you may need to refresh it. Contact your system administrator for assistance with Kerberos initialization. If the system administrator is unable to help you, consult your support center.

An alternative way to specify a working collective is by using the **-w** flag with the **dsh** command. If you need to install only a few nodes, use the `dsh -w host1, host2, host3...`command format to explicitly reference groups of nodes.

__ 5. Determine if the AIX operating system on each relevant node is at the required level by typing the following at the prompt:

```
dsh oslevel
```

OR

```
dsh -w <host1,host2> oslevel
```

Press Enter. `<host1,host2>` is a list of the host names for the nodes on which the adapter will be installed. The required AIX level is: 4.3.3 or later.

If the nodes are *not* at a supported AIX level, upgrade the AIX level on the nodes. Contact the system administrator for assistance.

__ 6. Determine if the PSSP level on each node is at the required level by typing the following:

```
/usr/lpp/ssp/bin/splstdata -G -b
```

Press Enter. The results display for all nodes and are in a form similar to the following:

```
node#         hostname  hdw_enet_addr srvr     response     install_disk
last_install_image  last_install_time  next_install_image lppsource_name
                                                                 pssp_ver
-------------------------------------------------------------------------
1 eion01.ppd.pok.i   08005A75A6D4    0         disk              hdisk0
           default Thu_Dec__4_09:07:23             default  <lppsource>
                                                          <pssp level>
```

`<lppsource>` is the lppsource name for the node. `<pssp level>` is the PSSP level installed on the node. The required PSSP level is 3.1 or later.

If the nodes are *not* at a supported PSSP level, upgrade the PSSP level on the nodes. Contact the system administrator for assistance.

__ 7. Record the name that appears below `lppsource_name` for each node on which the adapters are being installed. You will use this information later.

__ 8. Verify that the device driver is installed in the lppsource directory by typing the following at the system prompt:

```
cd spdata/sys1/install/<lppsource_name>/lppsource
```

<lppsource_name> was recorded in the previous step. Once you are in this directory, verify that the fileset is in the lppsource directory by typing the following at the prompt:

```
ls devices.pci.14100401*
```

If the device driver is not in the lppsource directory, proceed to section "Installing Software on the Control Workstation" on page 10 to install the software.

__ 9. Update the SPOT (Shared Product Object Tree) by doing the following:

__ a. Type the following at the system prompt:

```
smitty nim_res_op
```

The Resource Name screen displays with the following highlighted:

```
boot            resources     boot
```

__ b. Move the cursor down until the *SPOT resource* is highlighted. The *SPOT resource* should look similar to:

```
spot_AIX421     resources     spot
```

The format of the spot name is: spot_<lppsource_name>. <lppsource_name> was the name you recorded in a previous step.

__ c. When the *SPOT resource* is highlighted, press Enter to select this option. The Network Install Operation to Perform screen displays with the **reset** option highlighted for selection.

__ d. Move the cursor until the **cust** option is highlighted and press Enter to select this option. The Customize a SPOT screen displays with the **Source of Install Images** highlighted for selection.

__ e. Press F4 to display the list of installation images and select the appropriate lppsource.

__ f. Move the cursor until the appropriate lppsource is displayed. For example:

```
lppsource_AIX421      resources       lpp_source
```

Press Enter.

__ g. Move the cursor until *Fileset Names* is highlighted. Type the following fileset name:

```
devices.pci.14100401*
```

__ h. Press Enter to start the SPOT update. This operation can take up to 15 minutes.

__ 10. Verify that the device driver is already installed by typing the following at the system prompt:

```
dsh "lslpp -l devices.pci.14100401* 2>&1" |more
```

__ 11. If the device driver is already installed on the node, contact your service provider to have the adapter installed.

OR

If the device driver is not installed on the node, proceed to section “Installing Device Drivers on the SP Nodes” on page 11.

Installing Software on the Control Workstation

Note: If your system is *partitioned*; that is, there are more than one operating system among the nodes, you may *only* install this adapter in nodes that have AIX 4.3.3 or later.

__ 1. If you are not logged into the Control Workstation as a root user, log in now. You may also need to export the working collective. Refer to “Checking System Prerequisites” on page 7.

__ 2. Select the appropriate CD-ROM for the operating system, as follows:
- AIX 4.3.x - Additional Device Software

__ 3. Insert the installation media into the drive of the Control Workstation.

__ 4. Transfer the files to the Control Workstation’s lppsource, as follows:

a. Type the following, and then press Enter.

```
smitty bffcreate
```

b. Select the input device/directory. Press F4. Then move the cursor to the appropriate input device and press Enter.

c. Move the cursor to the **SOFTWARE package to copy** option and press F4 to select the software to be installed. Use the F7 key to select the following device driver(s) at the system prompt:

```
devices.pci.14100401
```

Press Enter.

d. Move the cursor down to **DIRECTORY for storing software package** and enter the appropriate lppsource destination directory:

```
/spdata/sys1/install/<lppsource_name>/lppsource
```

Use the <lppsource_name> you recorded earlier.

e. Press Enter to begin copying the files.

Note: This step may take several minutes while the directory table of contents is updated.

__ 5. Update the SPOT (Shared Product Object Tree) by doing the following:

a. Type the following at the system prompt:

```
smitty nim_res_op
```

The Resource Name screen displays with the following highlighted:

```
boot            resources    boot
```

b. Move the cursor down until the *SPOT resource* is highlighted. The *SPOT resource* should look similar to:

```
spot_AIX421     resources    spot
```

The format of the spot name is: spot_<lppsource_name>. <lppsource_name> was the name that you recorded in a previous step.

c. When the *SPOT resource* is highlighted, press Enter to select this option. The Network Install Operation to Perform screen displays with the **reset** option highlighted for selection.

d. Move the cursor until the **cust** option is highlighted, and press Enter to select this option. The Customize a SPOT screen displays with the **Source of Install Images** highlighted for selection.

e. Press F4 to display the list of installation images and select the appropriate lppsource.

f. Move the cursor until the appropriate **lppsource** is displayed. For example:

```
lppsource_AIX421      resources      lpp_source
```

Press Enter.

g. Move the cursor down until *fileset names* is highlighted. Type the following fileset name:

```
devices.pci.14100401
```

h. Press Enter to start the SPOT update. This operation can take up to 15 minutes.

__ 6. Proceed to step 9 under “Checking System Prerequisites” on page 7.

Installing Device Drivers on the SP Nodes

Do the following to install device drivers on the SP nodes:

__ 1. Make sure that the lppsource directory is exported to the nodes by typing the following at the system prompt:

```
showmount -e
```

If the directory is exported to the nodes, the result should look similar to the following:

```
/spdata/sys1/install/AIX421/lppsource (everyone)
```

__ 2. If the directory is not exported, you may temporarily export the directory by typing the following:

```
exportfs -i /spdata/sys1/install/<lppsource_name>/lppsource
```

__ 3. Perform an NFS mount of the lppsource directory by typing the following:

```
dsh mount <controlwks>:
/spdata/sys1/install/<lppsource_name>/lppsource /mnt
```

<controlwks> is the name of the Control Workstation recognized by the nodes. <lppsource_name> is the name you recorded earlier in “Checking System Prerequisites” on page 7.

__ 4. Perform a preview of the files to be installed on the nodes by typing the following at the system prompt:

```
dsh "installp -p -acqXd /mnt device driver 2>&1" | more
```

device driver is the fileset that must be installed for the adapter. The list includes:

- devices.pci.14100401

__ 5. Install the device driver by typing the following at the system prompt:

```
dsh "installp -acqXd /mnt device driver  2>&1" | more
```

device driver is defined in the previous step.

After the device driver is installed on the node, contact your service provider to have the adapter installed.

Chapter 5. Installing the 10/100/1000 Base-T Ethernet PCI Adapter

This chapter explains how to install the 10/100/1000 Base-T Ethernet PCI Adapter. Before you begin, be sure you have read “Handling Static-Sensitive Devices” on page vii.

Note: Do not remove the 10/100/1000 Base-T Ethernet PCI Adapter from its anti-static package at this time.

Installing the Adapter

To install the adapter, do the following:

1. Be sure you have read “Chapter 2. Preparing for Installation” on page 3 to determine:
   - If you should install your adapter hardware first, go to step 2 and continue with this section.
   - If you should install your device driver software first, go back to “Chapter 3. Installing the Device Driver Software” on page 5. Return here to install your hardware.
2. If your system supports hot-pluggable PCI adapters, refer to your system documentation to install the adapter and return to “Verifying Adapter Hardware Installation” on page 14. If your system does not support hot plugging, continue with the next step.
3. 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.
4. Remove the covers of your system unit. Follow the instructions provided in your system unit documentation.
5. 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.
6. Follow the directions provided in your system unit documentation to reinstall the covers of your system unit.
7. Plug the power cord back into the wall outlet.
8. Turn on the power to your system unit.

Verifying Adapter Hardware Installation

To verify that your system unit recognizes the PCI adapter, do the following:

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

   ```
   lsdev -Cs pci
   ```

3. Press Enter.

   A list of PCI devices displays. If the 10/100/1000 Base-T Ethernet PCI Adapter did install correctly, an `Available` status indicates that the adapter is installed and ready to use.

   If the messsage on your screen indicates your adapter is `DEFINED` instead of `AVAILABLE`, shut down your machine. Verify that the adapter was installed correctly. Go to "Chapter 5. Installing the 10/100/1000 Base-T Ethernet PCI Adapter" on page 13 and return to this section and repeat the verification steps.

   Note: If the message on your screen indicates your adapter is `DEFINED` a second time, it may be necessary to contact your service representative.

   If the installed adapter does not appear, continue with "Verify AIX Software Installation".

Verify AIX Software Installation

To verify that the device driver for the 10/100/1000 Base-T Ethernet PCI Adapter is installed, do the following:

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

   ```
   lslpp -l devices.pci.14100401.rte
   ```

3. Press Enter.

   Possible results are as follows:

   - If the 10/100/1000 Base-T Ethernet PCI 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.14100401.rte  4.3.3.25  COMMITTED    ...Ethernet...
                                                       Adapter Software
     Path: /etc/objrepos
     devices.pci.14100401.rte  4.3.3.25  COMMITTED    ...Ethernet...
                                                       Adapter Software
     ```

     Verify that the filesets **devices.pci.14100401.rte** are installed at the 4.3.3.25 level or higher.

     If this information displays but you continue to have problems, go to "Chapter 5. Installing the 10/100/1000 Base-T Ethernet PCI Adapter" on page 13.

- If no data displays on your screen, the 10/100/1000 Base-T Ethernet PCI Adapter device driver did not install correctly. Return to “Chapter 3. Installing the Device Driver Software” on page 5. Return to “Verifying Adapter Hardware Installation” on page 14 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.

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 6. Connecting to an Ethernet Network

This chapter explains how to connect the adapter to the network. Refer to your local procedures for information about connecting the 10/100/1000 Base-T Ethernet PCI 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

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

To connect the adapter to an unshielded twisted-pair (UTP) network, do the following:

1. Insert the RJ-45 jack of the UTP cable into the RJ-45 connector on the adapter.
2. Insert the RJ-45 jack of the other end of the UTP cable into the network switch.

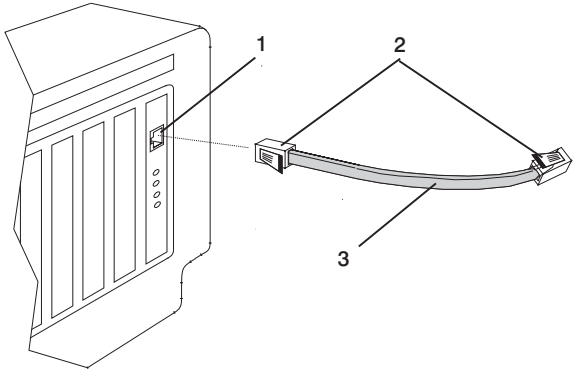

Figure 2. Connecting the Adapter to the Network

1 RJ-45 Connector

2 RJ-45 Jack

3 Unshielded Twisted-Pair (UTP) Cable

Understanding the Adapter LEDs

The LEDs on the 10/100/1000 Base-T Ethernet PCI Adapter provide information about the card's operation status. The LEDs are visible through the card's mounting bracket and, when lit, indicate the following conditions:

Light	State	Description
Data (Yellow)	Blinking	Data detected
	Off	No data detected
Link (Green)	On	Good link
	Off	No link: could be the result of a bad cable, bad connector, configuration mismatch, or not selected
	Blinking	Port has been disabled by software

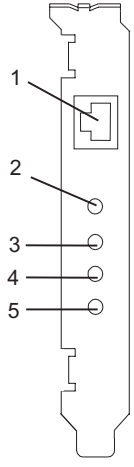

Figure 3. LEDs on the 10/100/1000 Base-T Ethernet PCI Adapter

1 RJ-45 Connector

2 Yellow LED (Data)

3 Green LED 1000 Mbps

4 Green LED 100 Mbps

5 Green LED 10 Mbps

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 10/100/1000 Base-T Ethernet PCI Adapter 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
- New Orchard Road
- Armonk, New York 10504
- Telephone: (919) 543-2193

Tested to Comply
With FCC Standards

FOR HOME OR OFFICE USE

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 est conform à la norme NMB-003 du Canada.

Canadian Department of Communications Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
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The following is a summary of the VCCI Japanese statement in the box above.

This product is a Class B Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). This product is aimed to be used in a domestic environment. 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.

Appendix B. Notices

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