

IBM Netfinity 10/100 Ethernet Adapter

**Installation and User's Guide**



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**Note**

Before using this information and the product it supports, be sure to read the general information under Appendix, "Notices" on page A-1.

**First Edition (October 1998)**

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## Safety Information



**Danger:** Before you begin to install this product, read the safety information in *Caution: Safety Information—Read This First*, SD21-0030. This booklet describes safe procedures for cabling and plugging in electrical equipment.



**Gevaar:** Voordat u begint met de installatie van dit produkt, moet u eerst de veiligheidsinstructies lezen in de brochure *PAS OP! Veiligheidsinstructies—Lees dit eerst*, SD21-0030. Hierin wordt beschreven hoe u elektrische apparatuur op een veilige manier moet bekabelen en aansluiten.



**Danger:** Avant de procéder à l'installation de ce produit, lisez d'abord les consignes de sécurité dans la brochure *ATTENTION: Consignes de sécurité—A lire au préalable*, SD21-0030. Cette brochure décrit les procédures pour câbler et connecter les appareils électriques en toute sécurité.



**Perigo:** Antes de começar a instalar este produto, leia as informações de segurança contidas em *Cuidado: Informações Sobre Segurança—Leia Isto Primeiro*, SD21-0030. Esse folheto descreve procedimentos de segurança para a instalação de cabos e conexões em equipamentos elétricos.



危險：安裝本產品之前，請先閱讀 "Caution: Safety Information—Read This First" SD21-0030 手冊中所提供的安全注意事項。這本手冊將會說明使用電器設備的纜線及電源的安全程序。



Opasnost: Prije nego što počnete sa instalacijom produkta, pročitajte naputak o pravilima o sigurnom rukovanju u Upozorenje: Pravila o sigurnom rukovanju - Prvo pročitaj ovo, SD21-0030. Ovaj priručnik opisuje sigurnosne postupke za priključivanje kabela i priključivanje na električno napajanje.



**Upozornění:** než zahájíte instalaci tohoto produktu, přečtěte si nejprve bezpečnostní informace v pokynech „Bezpečnostní informace“ č. 21-0030. Tato brožurka popisuje bezpečnostní opatření pro kabeláž a zapojení elektrického zařízení.



**Fare!** Før du installerer dette produkt, skal du læse sikkerhedsforskrifterne i *NB: Sikkerhedsforskrifter—Læs dette først* SD21-0030. Vejledningen beskriver den fremgangsmåde, du skal bruge ved tilslutning af kabler og udstyr.



**Gevaar** Voordat u begint met het installeren van dit product, dient u eerst de veiligheidsrichtlijnen te lezen die zijn vermeld in de publikatie *Caution: Safety Information - Read This First*, SD21-0030. In dit boekje vindt u veilige procedures voor het aansluiten van elektrische apparatuur.



**VAARA:** Ennen kuin aloitat tämän tuotteen asennuksen, lue julkaisussa *Varoitus: Turvaohjeet—Lue tämä ensin*, SD21-0030, olevat turvaohjeet. Tässä kirjasessa on ohjeet siitä, miten sähkölaitteet kaapeloidaan ja kytketään turvallisesti.



**Danger :** Avant d'installer le présent produit, consultez le livret *Attention : Informations pour la sécurité — Lisez-moi d'abord*, SD21-0030, qui décrit les procédures à respecter pour effectuer les opérations de câblage et brancher les équipements électriques en toute sécurité.



**Vorsicht:** Bevor mit der Installation des Produktes begonnen wird, die Sicherheitshinweise in *Achtung: Sicherheitsinformationen—Bitte zuerst lesen*, IBM Form SD21-0030. Diese Veröffentlichung beschreibt die Sicherheitsvorkehrungen für das Verkabeln und Anschließen elektrischer Geräte.



**Κίνδυνος:** Πριν ξεκινήσετε την εγκατάσταση αυτού του προϊόντος, διαβάστε τις πληροφορίες ασφάλειας στο φυλλάδιο *Caution: Safety Information—Read this first*, SD21-0030. Στο φυλλάδιο αυτό περιγράφονται οι ασφαλείς διαδικασίες για την καλωδίωση των ηλεκτρικών συσκευών και τη σύνδεσή τους στην πρίζα.



**Vigyázat:** Mielőtt megkezdi a berendezés üzembe helyezését, olvassa el a *Caution: Safety Information— Read This First*, SD21-0030 könyvecskében leírt biztonsági információkat. Ez a könyv leírja, milyen biztonsági intézkedéseket kell megtenni az elektromos berendezés huzalozásakor illetve csatlakoztatásakor.



**Pericolo:** prima di iniziare l'installazione di questo prodotto, leggere le informazioni relative alla sicurezza riportate nell'opuscolo *Attenzione: Informazioni di sicurezza — Prime informazioni da leggere* in cui sono descritte le procedure per il cablaggio ed il collegamento di apparecchiature elettriche.



危険： 導入作業を開始する前に、安全に関する小冊子SD21-0030 の「最初にお読みください」(Read This First)の項をお読みください。  
この小冊子は、電気機器の安全な配線と接続の手順について説明しています。



위험: 이 제품을 설치하기 전에 반드시 "주의: 안전 정보-시작하기 전에" (SD21-0030) 에 있는 안전 정보를 읽으십시오.



ОПАСНОСТ  
Пред да почнете да го инсталирате овој продукт, прочитајте ја информацијата за безбедност:  
"Предупредување: Информација за безбедност: Прочитајте го прво ова", SD21-0030.  
Оваа брошура опишува безбедносни процедури за каблирање и вклучување на електрична опрема.



**Fare:** Før du begynner å installere dette produktet, må du lese sikkerhetsinformasjonen i *Advarsel: Sikkerhetsinformasjon* — *Les dette først*, SD21-0030 som beskriver sikkerhetsrutinene for kabling og tilkobling av elektrisk utstyr.



Uwaga:

Przed rozpoczęciem instalacji produktu należy zapoznać się z instrukcją:

"Caution: Safety Information - Read This First", SD21-0030.

Zawiera ona warunki bezpieczeństwa przy podłączeniu do sieci elektrycznej i eksploatacji.



**Perigo:** Antes de iniciar a instalação deste produto, leia as informações de segurança *Cuidado: Informações de Segurança — Leia Primeiro*, SD21-0030. Este documento descreve como efectuar, de um modo seguro, as ligações eléctricas dos equipamentos.



**ОСТОРОЖНО:** Прежде чем устанавливать этот продукт, прочтите Инструкцию по технике безопасности в документе "Внимание: Инструкция по технике безопасности -- Прочсть в первую очередь", SD21-0030. В этой брошюре описаны безопасные способы каблирования и подключения электрического оборудования.



Nebezpečenstvo: Pred inštaláciou výrobku si prečítajte bezpečnosté predpisy v

Výstraha: Bezpečnosté predpisy - Prečítaj ako prvé, SD21-0030. V tejto brožúrke sú opísané bezpečnosté postupy pre pripojenie elektrických zariadení.



Pozor: Preden začnete z instalacijo tega produkta preberite poglavje: "Opozorilo: Informacije o varnem rokovanju-preberi pred uporabo," SD21-0030. To poglavje opisuje pravilne postopke za kabliranje.



**Peligro:** Antes de empezar a instalar este producto, lea la información de seguridad en *Atención: Información de Seguridad — Lea Esto Primero*, SD21-0030. Este documento describe los procedimientos de seguridad para cablear y enchufar equipos eléctricos.



**Varning — livsfara:** Innan du börjar installera den här produkten bör du läsa säkerhetsinformationen i dokumentet *Varning: Säkerhetsföreskrifter— Läs detta först*, SD21-0030. Där beskrivs hur du på ett säkert sätt ansluter elektrisk utrustning.



危險：

開始安裝此產品之前，請先閱讀安全資訊。

注意：

請先閱讀 - 安全資訊 SD21-0030

此冊子說明插接電器設備之電纜線的安全程序。



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## About This Manual

This manual contains instructions for installing and setting up your new IBM Netfinity 10/100 Ethernet Adapter.

Included are a product overview and description of some of the common installation problems and recommended solutions.

Information about Teaming options for Adapter Fault Tolerance and enhanced performance is also provided.

This manual is intended for adapter installers and network administrators for server systems.

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## How This Manual Is Organized

This manual contains the following chapters and appendixes:

- Chapter 1, "Introducing the Adapter" provides an introduction to the adapters. A description of the adapter kit contents, the Adapter Teaming options, the installation checklist, and help sources are included.
- Chapter 2, "Installing the Adapter Hardware" provides instructions for removing the cover and cables for your PC server and for locating the required components. Safety precautions and handling techniques are discussed, along with the required procedures for installing the adapters.
- Chapter 3, "Testing Your Adapters and Installing Device Drivers" provides information about how to use the help files on the Drivers and Installation CD-ROM to test your adapters and install your device drivers.

**Note:** The CD-ROM contains help files for loading device drivers in all operating systems supported. Descriptions of common problems and recommended solutions, PCI installation tips, and related technical topics are also included. All help files are in the \INFO directory.

To obtain a DOS bootable Diagnostic and Help diskette or the latest help and tips, visit the IBM Web site at:

<http://www.networking.ibm.com/support>

- Appendix, "Notices" contains IBM notices and trademark information.

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## Chapter 1. Introducing the Adapter

This chapter describes the adapter, the content of the adapter kit, and other materials you need to install the adapter. Topics include:

- “Adapter Overview”
- “Using IBMFESet” on page 1-3
- “About the Adapter Teaming Options” on page 1-4
- “About DMI-SNMP Support” on page 1-5
- “System Requirements” on page 1-6
- “Kit Contents” on page 1-6
- “Adapter Installation Checklist” on page 1-7
- “Help Information” on page 1-7

It is important that you are familiar with the PC server in which the adapter will be installed and with the PC server’s operating system and network software.

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### Adapter Overview

The IBM Netfinity 10/100 Ethernet Adapter paves the way to higher bandwidth operation, adapter fault tolerance, and improved network throughput, without disrupting your existing infrastructure. It is easy to use this Plug and Play, 32-bit Busmaster adapter. Designed for flexibility, it can run at 10 Mbps or 100 Mbps in full- or half-duplex mode to support a variety of network configurations, ranging from 10BASE-T to Fast Ethernet 100BASE-TX environments.

The adapter:

- Operates in shared 10BASE-T or 100BASE-TX environments as well as in switched 10-Mbps and 100-Mbps Ethernet networks
- Runs at either 10 Mbps or 100 Mbps in full-duplex mode, yielding 20-Mbps and 200-Mbps capacity. And up to 800-Mbps throughput with Adapter Teaming options.
- Attaches Ethernet LANs with a single RJ-45 connector
- Operates in symmetrical multiprocessing (SMP) environments

- Displays the status of link, activity, and 100-Mbps operation via LEDs
- Supports:
  - Windows NT 3.51 and NT 4.0, or higher
  - Windows 95 and Windows 98
  - Novell NetWare 3.11, 3.12, 4.1x, or higher
  - SCO Open Desktop 3.x, SCO Open Server 5.x, SCO UnixWare 2.x or higher
  - IBM OS/2 LAN Server
- Provides adapter fault tolerance, uninterrupted operation, and enhanced throughput with Adapter Teaming options and Hot Plug PCI capability.

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## Using IBMFESet

When you install the IBM Netfinity 10/100 Ethernet Adapter in Windows NT, an advanced configuration utility called IBMFESet is also installed. With this IBMFESet, users running Windows NT can easily test hardware, view the adapter parameters information, set standard adapter features, or set advanced options such as Adapter Teaming.

IBMFESet runs when you click the Properties button for the adapter in the Network section of the Control Panel. The main IBMFESet window is similar to the illustration below. To configure Adapter Teaming, advanced driver settings and other parameters, check other sections in this manual or use the IBMFESet online help, or read the help files located in the \INFO directory of the CD-ROM.

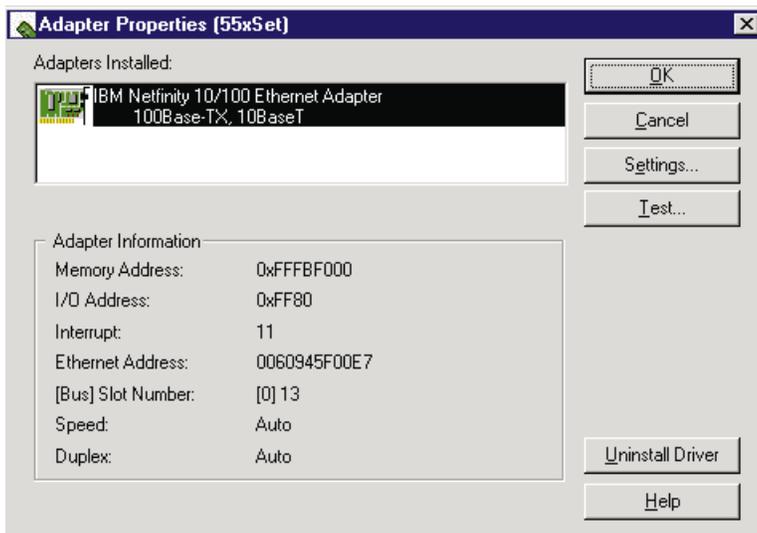


Figure 1-1. Example of the IBMFESet interface

---

## About the Adapter Teaming Options

The IBM Netfinity 10/100 Ethernet Adapter provides several options for increasing system throughput and fault tolerance when running Windows NT 4.0 or NetWare 4.1x and higher.

Combined with HotPlug PCI, teaming options enable a server to remain connected to the network indefinitely without powering down to perform maintenance.

The Adapter Teaming options are:

**Adapter Fault Tolerance (AFT)**, also known as Redundant NIC, provides automatic redundancy for your network connections. With an AFT team, if the primary fails, the secondary takes over. Combined with HotPlug PCI, if your server is HotPlug capable, you can perform maintenance without disrupting the server operation.

AFT should work with any hub or switch. Each AFT team should be connected to the same LAN segment.

**Adaptive Load Balancing (ALB)** provides the setup of a team of two to four adapters to increase transmission throughput with AFT function automatically built in.

Only the primary adapter can receive, but all adapters can transmit from the server to the network.

So, with four adapters, you can have up to 400-Mbps transmission and 100-Mbps reception.

ALB should work with any 100BASE-TX switch.

**Fast EtherChannel (FEC)** helps create a team of two or four adapters to increase both transmission and reception throughput with AFT function automatically built in.

Both transmission and reception will be loaded and balanced across all adapters in the team.

With four adapters, you can achieve up to 800-Mbps throughput at full duplex between your server and switch.

FEC works only with FEC-capable Cisco switches such as the Catalyst 5000 series.

**Note:** AFT and ALB are Intel-developed technologies and FEC is Cisco-developed technology.

For more details regarding AFT, ALB, FEC setup, read the TEAMING.TXT file in \INFO\GENERAL directory of the CD-ROM for the IBM Netfinity 10/100 Ethernet Adapter—or visit:

<http://www.networking.ibm.com/support>

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## About DMI-SNMP Support

The adapter CD software includes full DMI-SNMP agent codes that allow the adapter to act as a managed node in a DMI or SNMP-based network management environment. The DMI-SNMP node agent will let the adapter and its host system be monitored by any DMI or SNMP Manager (such as IBM LAN Client Control Manager, IBM Tivoli, Intel LANDesk Configuration Manager, HP Openview, and Sun SunNet).

The complete OID subtree path for the adapter is:

1.3.6.1.4.1.2.5.11.1.10.1

The details for this path are:

```
ibm = { enterprise 2 }
ibmArchitecture = { ibm 5 }
ibmDmi = { ibmArchitecture 11 }
mibsFromMifs = { ibmDmi }
oemLANAdapter = { mibsFromMifs 10 }

{ oemLANAdapter }
```

For more DMI-SNMP information, read the help files in the DMI-SNMP section of the CD.

---

## System Requirements

Before installing the IBM Netfinity 10/100 Ethernet Adapter, check your system for the following required or minimum configurations:

- One open busmaster PCI slot.
- 32 MB or more of system memory.
- The latest BIOS for your server.
- If you run Windows NT 4.0, Services Pack 3 is required. For Teaming options, you also need the NDIS driver hotfix.
- If you run NetWare 4.11, intraNetWare support pack 5.0 is required.

To get the latest Service Pack or Support Pack from Microsoft or Novell, visit the following web sites.

### Microsoft

#### Service Pack 3:

<ftp://ftp.microsoft.com/bussys/winnt/winnt-public/fixes/nt40/ussp3>

#### NDIS Driver Hotfix:

<ftp://ftp.microsoft.com/bussys/winnt/winnt-public/fixes/usa/nt40/hotfixes-postsp3/ndis-fix/>

### Novell

#### Support Pack 5

<http://support.novell.com/misc/pat1st.htm>

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## Kit Contents

Along with this manual, the adapter kits contain:

- The IBM Netfinity 10/100 Ethernet Adapter
- The Drivers and Installation CD-ROM
- *Caution: Safety Information—Read This First* booklet

If any item is missing or damaged, contact your place of purchase.

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## Adapter Installation Checklist

To install the adapter, complete the following steps in order.

\_\_\_ 1. Preparation

In addition to the contents of the adapter kit, you will need:

- The manual provided with your PC server
- The manual provided for your network operating system
- Your operating system and network application software
- All required service pack or support pack software for your operating system

\_\_\_ 2. Installing the adapter. See the instructions on page 2-1.

\_\_\_ 3. For help topics related to installing the adapter, refer to the help located in the \INF0 directory on your Drivers and Installation CD-ROM for:

- Information about testing the adapter
- Procedure for installing device drivers
- Procedure for Teaming options
- Other technical details

See "Help Files" for more information.

---

## Help Information

This includes help files and IBM product support.

### Help Files

To view and print the help files:

- Go to the \INF0 directory on the CD. Open the files with any text editor.
- Or with the CD-ROM in the CD-ROM drive, switch to that drive and enter from a DOS prompt: **setup /readme**
- Our support Web site also provides a DOS bootable Diagnostics and Help diskette that you can boot straight into the setup program for diagnostics and help. See "IBM Product Support" on page 1-8 for our Web information.

## **IBM Product Support**

The following IBM product support is available:

- **Internet Services**

You can use the Internet to download software updates, troubleshooting tips, installation notes, and more. Go to:

<http://www.networking.ibm.com/support>

and search for the IBM Netfinity 10/100 Ethernet Adapter.

- **IBM Product Support:**

- 1 800 426-7299 for Options by IBM HelpCenter
- 1 800 237-5511 for IBM Support Services
- 1 800 772-2227 for IBM HelpCenter
- 1 800 565-3344 for HelpPC (Canada)

---

## Chapter 2. Installing the Adapter Hardware

This chapter contains information to assist you in installing the IBM IBM Netfinity 10/100 Ethernet Adapter. Topics include:

- “Installing the Adapter”
- “Using the Correct Adapter Cable” on page 2-3

Before starting, you should review the following information:

- Chapter 1, “Introducing the Adapter”
- Appendix, “Notices” on page A-1
- The safety information in your PC manual concerning adapter installation

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### Installing the Adapter

- 1** In the manual provided with your PC, locate the instructions for installing an adapter. Be sure to follow any safety instructions in that manual.
- 2** Switch OFF the PC and all connected devices.
- 3** Remove the power cord from the outlet.  
**Note:** In the U.K., by law, the telephone line cable (if connected) must be disconnected before the power cord.
- 4** Remove all cables from your PC to the connected devices.  
**Note:** Make sure to label the cables for correct reconnection later.
- 5** Follow the instructions provided in your PC manual for removing the cover or otherwise accessing the adapter slots.
- 6** Remove the screw and cover for the appropriate PCI Busmaster-capable expansion slot. (Refer to your PC manual.) Keep the cover to use again if you remove the adapter.
- 7** Place the adapter in the slot.

**Note:** Most PCI slots in PCs are Busmaster-enabled, but some are not. If you have configuration problems, refer to your PC manual.

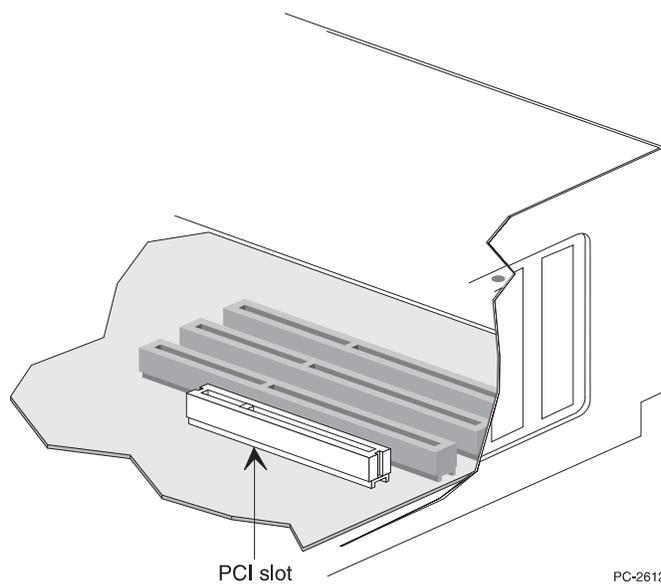


Figure 2-1. PCI Slot Illustration

- 8** Push the adapter into the slot until the adapter is seated firmly. Secure the adapter bracket with a screw.
- 9** If you are installing more than one adapter, repeat steps 6, 7, and 8 for each adapter you want to install.  
Otherwise, go to step 10.
- 10** Replace the cover on the PC, connect the cables to the connected devices, connect the signal cables to the receptacles, and finally, connect the power cord to the outlet.

**Note:** In the U.K., by law, the power cord must be connected before the telephone line cable.

**11** Connect a twisted-pair Ethernet category 5 cable to the adapter and to your Ethernet outlet. See “Using the Correct Adapter Cable” on page 2-3 for more information.

**12** Switch ON the connected devices and the PC.

**13** Step 2 of the Adapter Installation Checklist is now complete.

If you want to run the adapter diagnostics at this point, see Chapter 3, “Testing Your Adapters and Installing Device Drivers” for details.

---

## Using the Correct Adapter Cable

To reliably operate your network at 100 Mbps, you must use category 5 data grade cables with this adapter. Although category 3 or 4 might appear to work, you might experience intermittent lost of data. For more information, see the Hardware Specifications and Cabling topic on the Drivers and Installation diskette or the Diagnostics and Help diskette (“Help Files” on page 1-7 describes how to access this information.) For 10 Mbps, you can use category 3, 4, or 5 cabling.

**Residential Use:** If you are using this adapter in a residential environment, you *must* use category 5 data grade cables for either 10Mbps or 100Mbps (see emission notices in Appendix, “Notices” on page A-1).

**Note:** The adapter Ethernet address is printed on a sticker on the edge of the adapter as shown in Figure 2-2 on page 2-4. The Ethernet address is sometimes called the *Node address* or the *MAC address*. This unique, 12-digit hexadecimal address was stored in the adapter memory at the factory.

You can use this address to match the adapter to the slot number when configuring multiple adapters.

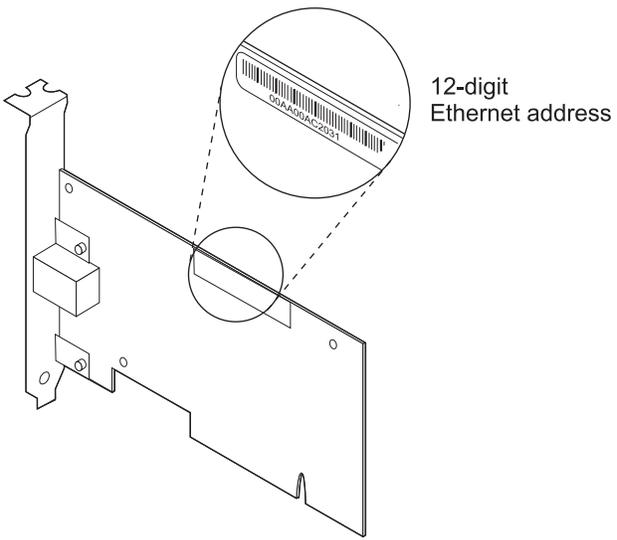


Figure 2-2. Ethernet Address Location

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## Chapter 3. Testing Your Adapters and Installing Device Drivers

This chapter contains information to assist you in testing your adapter and installing device drivers for your network environment.

Topics include:

- Testing your adapter
- Installing your adapter and device drivers
- Common Problems and Solutions
- Related Technical Topics

All instructions and help files for testing and installing your adapter are provided on the CD-ROM.

### Testing your Adapter

1. To test the adapter, DOS boot your system, place the CD in the CD drive, switch to that drive and type: **SETUP**
2. You can also download the DOS bootable Diagnostic and Help diskette from our Web site at:

**<http://www.networking.ibm.com/support>**

In this case, simply boot up your system with the diskette and it starts the SETUP program.

3. On the main SETUP menu, choose **Test the Adapter**.
4. Then follow the online instructions to run the diagnostics test. There are options for basic tests or more extensive network tests.

If you are running Microsoft Windows NT 4.0, you can also run adapter tests from the adapter properties feature.

## Installing your Adapter and Device Drivers

Use the procedure below to obtain all device drivers installation help and tips before you proceed to the actual installation in each specific operating system.

1. Follow Chapter 2, "Installing the Adapter Hardware" on page 2-1 for installing the adapter hardware.
2. Follow steps 1 or 2 of "Testing your Adapter" on page 3-1 to start the SETUP program.
3. On the main SETUP menu, choose **Installing Network Drivers** or **Viewing Help Files** or both. There will be Help and Instructions for installing device drivers in each specific Operating System, along with help for other related topics such as Adapter Teaming.
4. Instead of using SETUP from DOS boot, you can view or print out all of these help files from the DOS prompt or the Windows Explorer of your OS. All help files are in the \INFO directory on the CD-ROM.

---

## Common Problems and Solutions

Table 3-1 describes common problems and suggested solutions.

*Table 3-1 (Page 1 of 3). Common Problems and Solutions*

<b>Problem</b>	<b>Solution</b>
The SETUP.EXE program reports the adapter's interrupt as 0 or 255.	The PCI BIOS is not configuring the adapter correctly. See "PCI Installation Tips" on page 3-4 for more information.
The SETUP.EXEC program indicates that there is No PCI Bus.	The PCI BIOS is not configuring the adapter correctly. See "PCI Installation Tips" on page 3-4 for more information.
The PC halts when loading drivers.	Change the PCI BIOS interrupt settings. See "PCI Installation Tips" on page 3-4 for more information.

Table 3-1 (Page 2 of 3). Common Problems and Solutions

Problem	Solution
The diagnostics are completed successfully, but the connection fails.	<ul style="list-style-type: none"> <li>• Ensure that the network cable is securely attached.</li> <li>• Ensure that you are using category 5 cabling when operating at 100 Mbps.</li> </ul>
LNK LED does not light.	<ul style="list-style-type: none"> <li>• Ensure that you have loaded the network drivers.</li> <li>• Check all connections at the adapter and the hub.</li> <li>• Try another port on the hub.</li> <li>• If you forced duplex mode, ensure that you also force the speed to either 10 or 100 Mbps.</li> <li>• Ensure that the hub port is configured for the correct speed, 10 or 100 Mbps.</li> </ul>
ACT LED does not light.	<ul style="list-style-type: none"> <li>• Ensure that you have loaded the network drivers.</li> <li>• If you suspect that the network might be idle, try sending data from the workstation.</li> <li>• Try another adapter if the adapter is not transmitting or receiving data.</li> </ul>
Data is corrupted or sporadic.	Ensure that you are using category 5 cabling when operating at 100 Mbps.
The adapter stopped working when another adapter was added to the PC.	<ul style="list-style-type: none"> <li>• Ensure that the cable is connected to the IBM Netfinity 10/100 Ethernet Adapter</li> <li>• Ensure that your PCI system BIOS is current.</li> <li>• Try reseating the adapter.</li> <li>• See "PCI Installation Tips" on page 3-4 for more information.</li> </ul>

Table 3-1 (Page 3 of 3). Common Problems and Solutions

Problem	Solution
The adapter stopped working without apparent cause.	<ul style="list-style-type: none"><li>• Try reseating the adapter or try a different slot.</li><li>• If the network driver files are missing or might be corrupted, reinstall the drivers.</li><li>• Try a different IBM Netfinity 10/100 Ethernet Adapter</li></ul>

## Related Technical Topics

This section contains additional technical topics of interest, such as:

- “PCI Installation Tips”
- “Fast Ethernet Cabling” on page 3-5
- “Fast Ethernet Hubs” on page 3-6

## PCI Installation Tips

Some PCI PCs require additional steps to configure a PCI adapter. You might need to:

- Reserve interrupts (IRQs) or memory addresses or both for ISA adapters
- Enable the PCI slot and assign an IRQ

In some PCI PCs, you must use the PCI BIOS setup program to enable the PCI slot and assign an IRQ. This is especially common in PCI PCs with the Phoenix BIOS.

- Update your PCI BIOS

An updated PCI system BIOS can correct some PCI configuration problems. Contact your PC manufacturer to see whether an updated BIOS version is available for your PC. Phone numbers for the top PCI PC manufacturers are listed in the PCI Installation help file on the Drivers and Installation diskette. (“Help Files” on page 1-7 describes how to access this information.)

- Configure the slot for level-triggered interrupts

The slot the adapter is using must be configured for level-triggered interrupts rather than edge-triggered interrupts. Check your PCI BIOS setup program.

Table 3-2 describes some of the common PCI BIOS setup program parameters.

*Table 3-2. PCI BIOS Setup Program Parameters*

<b>Parameter Names</b>	<b>Values</b>
PCI slot #	Slot where the adapter is installed
Master	ENABLED
Subordinate	ENABLED
Latency timer	40
Interrupt	Choose any one of several that the BIOS setup provides.
Edge-level	Level

**Note:** Parameter names can vary with different PCs.

### **Fast Ethernet Cabling**

The 100BASE-TX specification supports 100-Mbps transmission over two or four pairs of twisted-pair Ethernet cabling. In two-pair cabling, one pair of cables is used for transmission, and the other is used for reception and collision detection.

Because a 125-MHz frequency is used on the wire, 100BASE-TX requires category 5 cabling.

Segment lengths are limited to 100 m (328 ft) with 100BASE-TX for signal-timing reasons.

## **Fast Ethernet Hubs**

New hubs are becoming available to support a variety of Fast Ethernet LAN configurations. These hubs can be divided into two basic types: shared and switched. The IBM Netfinity 10/100 Ethernet Adapter can be used with either type of hub for 10-Mbps or 100-Mbps operation.

### **Shared Hubs**

In a shared network environment, PCs are connected to hubs. A repeater is built into each port of the hub. All ports of the repeater hub share a fixed amount of bandwidth, or data capacity.

A 100-Mbps shared hub means that all nodes on the hub must share the 100 Mbps of bandwidth. As stations are added to the hub, the effective bandwidth available to any individual station becomes smaller.

Think of a shared repeater hub as a single-lane highway that everyone uses. As the number of vehicles on the highway increases, the traffic becomes congested and transit time for individual cars increases.

On a shared hub, all nodes must operate at the same speed, either 10 Mbps or 100 Mbps. Fast Ethernet repeaters provide 100 Mbps of available bandwidth, ten times more than what is available with a 10BASE-T repeater. Repeaters use a well-established, uncomplicated design, making them highly cost-effective for connecting PCs within a workgroup. These are the most common type of Ethernet hubs in the installed base.

### **Switched Hubs**

In a switched network environment, each port gets a fixed, dedicated amount of bandwidth.

In a switched environment, data is sent to only the port that leads to the correct destination station. Network bandwidth is not shared among all stations, and each new station added to the hub gets access to the full bandwidth of the network.

If a new user is added to a 100-Mbps switching hub, the new station receives its own dedicated 100-Mbps link and does not affect the 100-Mbps bandwidth of another station. Switching hubs can effectively increase the overall bandwidth available on the network, significantly improving performance.



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## **Safety Notices**

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## **Statement of Compliance with the United Kingdom Telecommunications Act 1984**

This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connections to the public telecommunications systems in the United Kingdom.

---

## **Electronic Emission Notices for Category 5 Data Grade Cables**

**IBM 10/100 EtherJet PCI Adapter** — PN 34L0801

**IBM 10/100 EtherJet PCI Adapter with Wake on LAN** — PN 34L0201

## **Federal Communications Commission (FCC) Statement**

**Note:** This equipment 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 instruction manual, 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:

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- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM 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 IBM authorized dealers. IBM is not

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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, NY 10504  
Telephone - 19195432193

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Der Aussteller der Konformitätserklärung ist die

IBM Deutschland Informationssysteme GmbH  
70548 Stuttgart

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### **Industry Canada Class A Emission Compliance Statement**

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**IBM Netfinity 10/100 Ethernet Adapter  
Installation and User's Guide  
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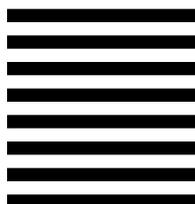
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