10/100 EtherJet CardBus Ready Port Adapter

Installation and Planning Guide

OPTIONS
by IBM

Note

Before using this information and the product it supports, be sure to read the general information in "Appendix C. Notices" on page 25.

Third Edition (December 1999)

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Contents

About this manual

This manual contains instructions for installing and configuring the 10/100 EtherJet CardBus Ready Port Adapter under Microsoft® Windows® 95, Windows 98, and Windows NT® and general diagnostics and troubleshooting information.

Who should read this manual

This manual is intended for both the end-user and network administrator of the 10/100 EtherJet CardBus Ready Port Adapter.

How this manual is organized

This manual contains the following chapters and appendixes:

- "Chapter 1. Hardware installation" on page 1 lists the equipment and system requirements and describes the hardware installation procedure.
- "Chapter 2. Windows 95 and Windows 98 installation" on page 5 provides information on the drivers supplied for installation under Windows 95.
- "Chapter 3. Windows NT installation" on page 11 provides information on the drivers supplied for installation under Windows NT.
- "Chapter 4. Diagnostics and troubleshooting" on page 15 contains supplementary diagnostics and troubleshooting information for the EtherJet CardBus Ready Port Adapter.
- "Appendix A. Product support services" on page 21 list the services available for the EtherJet CardBus Ready Port Adapter.
- "Appendix B. Specifications" on page 23 list the general and physical specifications for the EtherJet CardBus Ready Port Adapter.
- "Appendix C. Notices" on page 25 contains any notices associated with the EtherJet CardBus Ready Port Adapter.

Additional information

For information on IBM OS/2®, 32-bit ODI drivers, and Windows 3.x, and supplementary information on Windows 95, see the Windows Help file HELPDOCS.HLP and README.TXT on the adapter CD-ROM.

For software updates and troubleshooting information, visit the IBM web site at:
http://www.ibm.com/networking/support

Chapter 1. Hardware installation

Follow the instructions in this chapter to install the 10/100 EtherJet CardBus Ready Port Adapter hardware and network cabling. Then proceed to the software installation chapter for your operating system environment, as follows:

- "Chapter 2. Windows 95 and Windows 98 installation" on page 5
- "Chapter 3. Windows NT installation" on page 11
- "Chapter 4. Diagnostics and troubleshooting" on page 15

The 10/100 EtherJet CardBus Ready Port Adapter provides access to both 10-Mbps and 100-Mbps networks with a single adapter cable, and auto-negotiates 10 Mbps or 100 Mbps network speed.

Notes:

1. Some computers may require that you configure the built-in system setup or BIOS to enable the use of CardBus adapters. Refer to your computer's Users Guide for configuration information.
2. Category 5 (data grade) unshielded twisted pair (UTP) cabling is required for 100 Mbps or Category 3 or 5 for 10 Mbps.

Viewing HELPDOCS.HLP

For information on Windows 3.x, IBM OS/2, and 32-bit ODI installation and troubleshooting, and supplementary information for other operating systems, see the Windows Help file HELPDOCS.HLP on the adapter CD-ROM.

You can view the HELPDOCS.HLP file in one of the following ways from the adapter CD-ROM:

- From Windows 95, Windows 98, and Windows NT, select the **Helpdocs** icon.
- From Windows 3.x:
  1. Click **File** from the Program Manager.
  2. Click **Run**.
  3. In the Run window, enter *path***helpdocs.hlp**, where *path*\ is the drive containing the adapter CD-ROM.
  4. Click **OK** to view the help file.

- From OS/2:
  1. Click **OS/2 System** icon.
  2. Click **Command Prompts** icon.
  3. Click **Win-OS/2 Full Screen** icon or **Windows/3.1** icon. This opens the Windows Program Manager.
  4. Click **File** from the Program Manager.
  5. Click **Run**.
  6. In the Run window, enter ***path*\helpdocs.hlp**, where *path* is the drive containing the adapter CD-ROM.
  7. Click **OK** to view the help file.

Before installing hardware

Check that the package contains the following items, in addition to this publication:
- EtherJet CardBus Ready Port Adapter
- Quick Install Card
- Software and online documentation on CD-ROM

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

Verify other required equipment

To install the EtherJet CardBus Ready Port Adapter, you need the following equipment:
1. A portable PC with a CardBus PC Card slot.
2. A local area network supporting 10 or 100 Mbps Ethernet, as required, and a network operating system supported by the EtherJet CardBus Ready Port Adapter.

   Note: Because the EtherJet CardBus Ready Port Adapter automatically detects the speed of the network to which it is connected, it may be safely connected to either a 100BASE-TX or 10BASE-T network, as specified in items 3 and 4 below.
3. For connection to a 100BASE-TX 100-Mbps Ethernet network, a Category 5 (data grade) unshielded twisted pair (UTP) network cable terminating in a male RJ-45 connector and connected to a 100-Mbps hub or switch.
4. For connection to a 10BASE-T twisted pair Ethernet network, a network cable terminating in a male RJ-45 connector and connected to a 10-Mbps hub or switch.

Determine system requirements

During installation of the EtherJet CardBus Ready Port Adapter hardware, the computer should be ON and your standard operating software should be loaded. If configured to do so, your system will detect the EtherJet CardBus Ready Port Adapter. For details on how to install driver software, see the chapter for your operating system environment.

Note: The EtherJet CardBus Ready Port Adapter hardware is compatible with Type III and dual Type II PC Card slots that support CardBus technology. Installation and removal procedures may vary on different computers.

Installing the hardware

Note: The EtherJet CardBus Ready Port Adapter can only be used in CardBus-compliant PC Card slots.

To install the EtherJet CardBus Ready Port Adapter, use the following instructions.

1. Grasp the EtherJet CardBus Ready Port Adapter by the edges with the IBM label facing upward and the wide PC Card connector next to the insertion slot, as shown in Figure 1.

2. Insert the card into the CardBus slot and push it in until it is firmly seated.

LAN LINK
ORANGE- 100 Mbps
GREEN- 10 Mbps

LAN ACTIVITY (YELLOW)
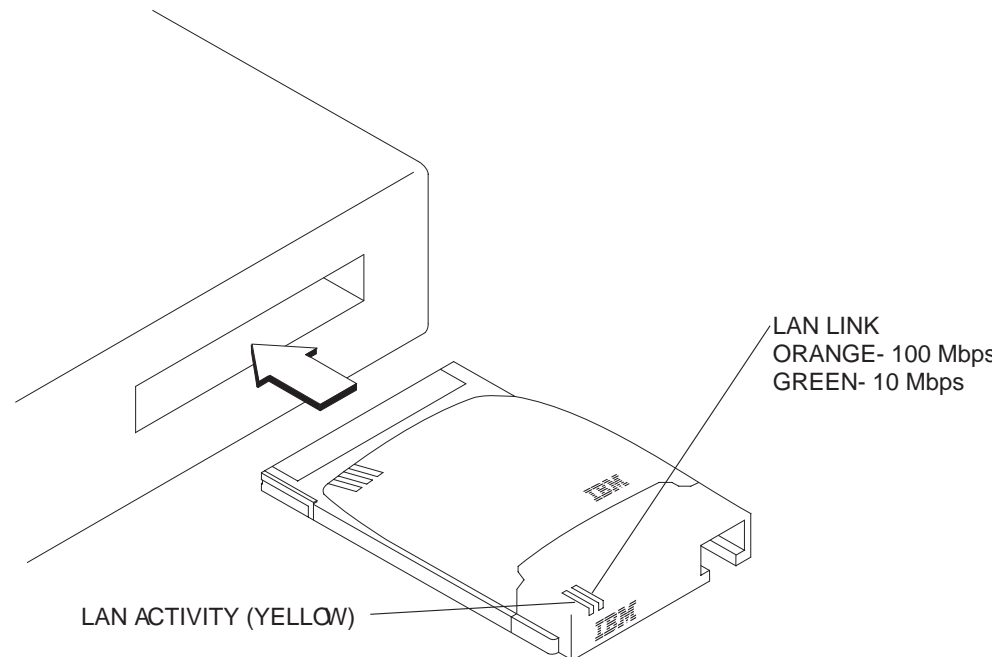
Figure 1. Inserting the adapter into the computer

3. Connect the network cable as shown in Figure 2.
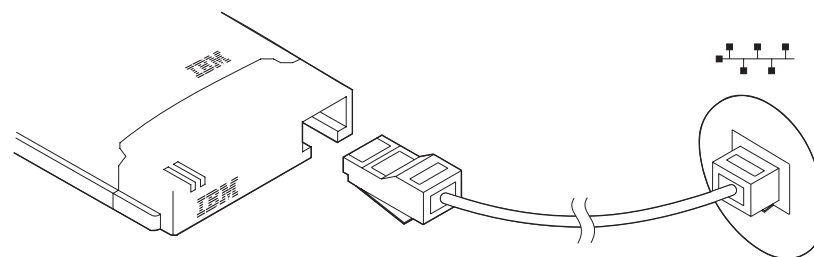
Figure 2. Connecting the network cable to the adapter

Power-saving mode

The EtherJet CardBus Ready Port Adapter is designed for very low power consumption, minimizing the computer's battery drain. The EtherJet CardBus Ready Port Adapter automatically senses when the LAN cable is detached and reattached, and it goes in or out of a lower power mode accordingly. This maximizes battery life.

Chapter 2. Windows 95 and Windows 98 installation

Plug and Play installation

Most CardBus-enabled computers support Plug and Play installation of the EtherJet CardBus Ready Port Adapter under Windows 95 and Windows 98. However, early versions of Windows 95 (950 or 950a) require manual installation. Both types of installation are described in this chapter. Troubleshooting and keyword information is also provided.

Drivers available

The following drivers for Windows 95 and Windows 98 are supplied with the EtherJet CardBus Ready Port Adapter:
- An NDIS3 driver (IBMC.SYS) for Windows 95 and Windows 98
- An NDIS4 driver (IBMCN4.SYS) for Windows 95 and Windows 98
- An NDIS5 driver (IBMCN5.SYS) for Windows 98
- A 32-bit ODI driver (IBMC.LAN) with promiscuous support

To install the NDIS3 driver IBMC.SYS, use the procedures described in this chapter.

For NDIS4 and NDIS5 instructions, see the README.TXT file on the adapter CD-ROM.

If your environment requires the use of the 32-bit ODI client driver under Windows 95 (as indicated by your network administrator), see the Windows Help file HELPDOCS.HLP on the adapter CD-ROM.

How to create diskettes for software installation

To create a set of diskettes for use in installation, as an alternative to using the adapter CD-ROM, run MAKEDISK.BAT from the adapter CD-ROM to copy the required installation files to two blank diskettes.

Installing under Windows 95 and Windows 98

1. With Windows running, insert the EtherJet CardBus Ready Port Adapter into the CardBus PC Card slot and connect cables as shown in "Chapter 1. Hardware installation" on page 1.

2. **Plug and Play installation (Versions 950b OSR2 and later)**. If Windows displays the New Hardware Found window, follow the instructions on the screen to complete the installation. No further steps are necessary.

   If the New Hardware Found window does not appear, go to step 3.

   Notes:

   a. If the New Hardware Found windows appears, but the EtherJet CardBus Ready Port Adapter does not initialize or shows conflicts in Device Manager, see "Windows 95 and Windows 98 troubleshooting" on page 7.

   b. If you are installing on a Toshiba portable computer and the New Hardware Found window does not appear, see the Windows Help file HELPDOCS.HLP on the adapter CD-ROM for instructions.

3. **Manual installation (Windows 95 versions 950 or 950a)**. Click **Start**, select **Settings**, then click **Control Panel**.

4. In the Control Panel, double-click **Network**.

5. In the Network window, Configuration tab, click **Add**.

6. In the Select Network Component Type window, double-click **Adapter**.

7. In the Select Network Adapter window, click **Have Disk**.

8. Insert the adapter CD-ROM.

9. Select *path* in the input box, where *path* is the drive containing the adapter CD-ROM and click **OK**.

10. Select **IBM 10/100 EtherJet CardBus Adapter Manual Load** and click **OK**.

11. In the Network window, click **OK**.

   The IBM dialog box displays various settings. An asterisk (*) in any field indicates that the current setting is incorrect. Use the Up or Down arrow to adjust the setting until the asterisk disappears.

12. Click **OK**. The Copying Files windows opens.

13. Insert your original Windows 95 or Windows 98 CD-ROM or diskette (identify the drive that holds the CD-ROM or diskette) and click **OK**. The System Settings window opens.

   Note: If Windows 95 was preinstalled, the necessary files are located in the following directory:`c:\windows\options\cabs`

14. Click **Yes** when prompted to restart the computer.

   Notes:

   a. If you hear a Windows 95 "error" beep on reboot, ignore it.

   b. For supplementary information on Windows 95 versions 950/950a, see the Windows Help file HELPDOCS.HLP on the adapter CD-ROM.

Windows 95 and Windows 98 troubleshooting

The EtherJet CardBus Ready Port Adapter is detected by Windows 95 Version 950b (OSR2), but does not initialize or shows errors in Device Manager.

The EtherJet CardBus Ready Port Adapter may need to be installed manually under Windows 95 version 950b and later even if it was detected, as indicated by the message `New Hardware Found`.

The following sections provide manual installation instructions.

Manual installation under Windows 95 Version 950b (OSR2) and later

1. Click the **Start** button in the lower left corner of the screen.
2. Choose the menu item: **Settings**.
3. Choose the menu item: **Control Panel**.
4. Double-click the System icon.
5. In the System Properties window, view the Device Manager tab.
6. In the Device Manager window, click **PCMCIA Socket**.

   There will be two CardBus controllers listed under PCMCIA socket. "Top" and "bottom" designations may vary in different machines.

   - With the EtherJet CardBus Ready Port Adapter in the bottom slot, click the bottom CardBus controller to select it.

7. Click **Properties**. Check the box **Disable** in this hardware profile.
8. Click **OK**. You will see a red X on the CardBus controller that was disabled.
9. Click **OK** on the Device Manager tab.
10. Open a DOS session in Windows 95 OSR2 and delete the following files:
    - `\WINDOWS\INF\*.BIN`
    - `\WINDOWS\INF\SX*.INF`
    - `\WINDOWS\SYSTEM\IBMC.SYS`
11. Rename the files CONFIG.SYS and AUTOEXEC.BAT to ensure that Windows 95 OSR2 runs in 32-bit protected mode.

    Windows 95 OSR2 does not support the use of real-mode and protected-mode drivers simultaneously. This combination may cause unpredictable results. If these drivers are of mixed types, the computer might stall or the network might not work. The following commands can be used to rename the AUTOEXEC.BAT and CONFIG.SYS:
    - `REN C:\AUTOEXEC.BAT C:\AUTOEXEC.X0X`
    - `REN C:\CONFIG.SYS C:\CONFIG.X0X`
12. Shut down Windows 95 OSR2 and power off the machine. Remove the EtherJet CardBus Ready Port Adapter physically from the PC Card slot.
13. Restart Windows 95 OSR2. When all disk drive activity has stopped, reinsert the adapter in the PC Card slot.
14. Click **Start**, select **Settings**, and then **Control Panel**. Double-click **Add New Hardware**. When asked,

    `Do you want Windows to search for your new hardware?`,

    select **No** and click **Next**.
15. Select **Network adapters** and click **Next**. Under Manufacturers, select **IBM** and click the **Have Disk** button.

16. Insert the adapter CD-ROM and select *path* in the Input box, where *path* is the drive containing the adapter CD-ROM. Click **OK**.

17. Select **IBM 10/100 Etherjet CardBus Adapter manual load**, click **OK**, click **OK** again, click **Next**, and then **Finish**.

    The PC Card (PCMCIA) Wizard appears. A copy of the Windows 95 OSR2 CAB files should already be on the machine.

18. When asked,

    ```
    Are you using a PC card to install Windows?,
    ```

    select **No**.

19. When asked,

    ```
    Do you want to review your system files ..?,
    ```

    select **No**. Click **Next** and then **Finish**.

20. Select **Yes** to shut down the computer. Windows 95 OSR2 will add the IBM adapter in Device Manager and under Network components. Depending on the installation, you might be prompted for the Windows 95 OSR2 diskettes or CD-ROM to set up a basic Microsoft network.

Windows 95 OSR2 includes 32-bit clients for:

1. Microsoft Networks
2. NetWare Networks

For instructions on installation of the 32-bit ODI driver, see the Windows Help file HELPDOCS.HLP on the adapter CD-ROM.

Windows 95 and Windows 98 driver parameters reference

IBMC.SYS (NDIS3), IBMCN4.SYS (NDIS4), and IBMCN5.SYS (NDIS5) driver settings

IBMC.SYS is an NDIS3 driver, IBMCN4.SYS is an NDIS4 driver, and IBMCN5.SYS is an NDIS5 driver. All conform to the Microsoft Network Driver Interface Specification (NDIS).

The files necessary for using IBMC.SYS with Windows 95 and Windows 98 include:

NETIBMC.INF
> Installation file for Windows 95 and Windows 98

IBMC.SYS
> NDIS3 driver for Windows 95 and Windows 98

The files necessary for using IBMCN4.SYS with Windows 95 and Windows 98 include:

NETIBMN4.INF
> Installation file for Windows 95 and Windows 98

IBMCN4.SYS
> NDIS4 driver for Windows 95 and Windows 98

The files necessary for using IBMCN5.SYS with Windows 98 include:

NETIBMN5.INF
> Installation file for Windows 98

IBMCN5.SYS
      NDIS5 driver for Windows 98

You can modify user-configurable parameters to the IBMC.SYS, IBMCN4.SYS, and IBMCN5.SYS drivers using the Network Control Panel built into Windows 95 and Windows 98. This applet queries you for parameter selections and sets the corresponding parameters in the registry. The user-configurable parameters are as follows:

Parameter	Default	Valid Values	Regular Value
DirectEnable	AutoDetect	AutoDetect ON OFF	0 2 1
EarlyTransmit	ON	OFF ON	0 1
InterruptStyle	0	AutoDetect PCI-IRQ ISA-IRQ	0 1 2
LineSpeed	Auto	AutoDetect 10 Mbps 100 Mbps	0 1 2
LineMode	0	AutoDetect Half-Duplex Full-Duplex	0 1 2
NetworkAddress		See network administrators note below	
Socket	0	AutoDetect 1, 2, 3, 4	0 0, 1, 2, 3, 4
CableDetect	ON	ON OFF	1 0
AutoPolarity	ON	ON OFF	1 0
DynamicLinkDetect	ON	ON OFF	1 0

For network administrators only: The network node address can be modified by specifying a value for network address such as 0080C7112233. If the user does not specify a Network Address, then the IBMC.SYS driver uses the network node address contained in the EtherJet CardBus Ready Port Adapter Information Structure.

Note: For definitions of the keywords above, see the Keyword Reference in "Chapter 4. Diagnostics and troubleshooting" on page 15.

Chapter 3. Windows NT installation

The EtherJet CardBus Ready Port Adapter supports manual installation under Microsoft Windows NT 3.51 and NT 4.0. Plug and Play installation and hot swapping of CardBus adapters are not directly supported by Windows NT, but may be supported through third-party Card and Socket services software.

Drivers available

The following drivers for Windows NT and Windows 2000 are on the adapter CD-ROM:

- IBMC.SYS - NDIS3 driver for Windows NT 3.51 and NT 4.0
- IBMCNT.SYS - Card and Socket Services driver for Windows NT 3.51 and NT 4.0
- IBMCN4.SYS - NDIS4 driver for Windows NT 4.0
- IBMCN5.SYS - NDIS5 driver for Windows 2000

The NDIS3 driver IBMC.SYS and the IBMCNT.SYS driver are described in this chapter. For NDIS4 and NDIS5 instructions, see the README.TXT file on the adapter CD-ROM.

Note: Before installing the EtherJet CardBus Ready Port Adapter under Windows NT 4.0, see the README file on the adapter CD-ROM or visit the product Web site at: http://www.ibm.com/networking/support.

Card and Socket Services software

Some Windows NT 4.0 installation include third-party Card and Socket Services software designed to improve PC Card installation and to support hot swapping. In addition to the standard NDIS3 and NDIS4 drivers, IBM has developed IBMCNT.SYS to provide additional support for certain Card and Socket Services software.

The EtherJet CardBus Ready Port Adapter supports the following Windows NT 4.0 Card and Socket Services software:

- **CardExecutive for NT 4.0 from Phoenix Technologies**

  Support for Phoenix CardExecutive is provided by the special Card and Socket Services driver IBMCNT.SYS.

- **CardWare for Windows NT 4.0 from Award Software**

  For instructions on using Award CardWare, see the README.TXT file on the adapter CD-ROM.

- **CardWizard for NT 4.0 from SystemSoft Corporation**

  Support for SystemSoft CardWizard is provided in the NDIS3 driver IBMC.SYS.

- **PC Card Controller for NT from Softex Incorporated**

  Softex PC Card Controller for NT provides functionality similar to Phoenix CardExecutive. If you are using Softex, follow the instructions for Phoenix CardExecutive.

Which driver to use

Use the following information to determine which driver to use in your environment.

- **IBMC.SYS**

For use under NT 3.51 and 4.0 without Card and Socket Services, and for use under NT 4.0 with SystemSoft CardWizard for NT 4.0.

- **IBMCNT.SYS**

  For use under NT 4.0 with Phoenix CardExecutive and Softex PC Card Controller for NT.

- **IBMCN4.SYS, IBMCN5.SYS**

  See the README.TXT file on the adapter CD-ROM.

Installing under NT 4.0

Insert the EtherJet CardBus Ready Port Adapter into the CardBus PC Card slot.

1. **Adapter Detected:** If the EtherJet CardBus Ready Port Adapter is detected, go the the section "Installation under NT 4.0 using Card and Socket Services".

2. **Adapter not detected:** If the EtherJet CardBus Ready Port Adapter is not detected, go to "Installation under NT 4.0 without Card and Socket Services".

Installation under NT 4.0 using Card and Socket Services

1. Once the Card Services software has detected the adapter, follow the on screen installation instructions for your Card and Socket Services software. Use of default resource settings is recommended.

2. If the Card Services software includes a driver for the EtherJet CardBus Ready Port Adapter, install that driver. To verify that you have the latest IBM network drivers, visit the IBM Web site. Otherwise, follow the guidelines below:

   - **SystemSoft CardWizard** Card Services software will display a CardWizard icon on the task bar when you insert the adapter. Use the driver **IBMC.SYS**, located in the root of the adapter CD-ROM.

   - **Phoenix CardExecutive** and **Softex PC Card Controller** use the driver **IBMCNT.SYS**, located in the \IBMCNT directory on the adapter CD-ROM. When the Card Services software prompts for the driver diskette, enter **\path\IBMCNT**, where *path* is the drive containing the adapter CD-ROM.

   - **Award CardWare** instructions are in the **README.TXT** file on the adapter CD-ROM.

Installation under NT 4.0 without Card and Socket Services

Use these instructions if the EtherJet CardBus Ready Port Adapter was not detected upon insertion, indicating that no Card and Socket Services software is in use.

1. With the EtherJet CardBus Ready Port Adapter in the PC Card slot, click **Start**, click **Settings**, and select **Control Panel**. The Control Panel opens.

2. Double-click the **Network** icon. The Network Settings window opens.

3. Click the **Adapters** tab. The Network Adapters window opens.

4. Click **Add**. The Select Network Adapter window opens.

5. Click **Have Disk** and insert and type the path to the adapter CD-ROM.

6. Click **OK**. The OEM Option window opens.

7. Click **OK**. The Windows NT Setup window briefly displays.

8. The EtherJet CardBus Ready Port Adapter Settings window opens, displaying the default settings.

> **Note:** In most circumstances, the default settings will operate the CardBus correctly. However, consult the README.TXT file on the adapter CD-ROM for the latest recommendations.

9. Click **OK**. The Network Settings window redisplays.
10. Click **Close**. If any dialog boxes appear related to setting up network protocols, click **Cancel** and contact your network administrator.
11. When the Network Settings Change window opens, click **Yes** to restart the computer.

Installing under NT 3.51

1. Insert the EtherJet CardBus Ready Port Adapter.
2. Double-click the **Control Panel**. The Control Panel opens.
3. Double-click the **Network icon**. Network Settings opens.
4. Click **Add Adapter**. The Add Network Adapter window opens.
5. Scroll to select **Other (requires IBM CD-ROM from manufacturer)**.
6. Click **Continue**. The Insert Disk window opens.
7. Insert the adapter CD-ROM.
8. Click **OK**. The Select OEM Option windows opens.
9. Click **OK**.
10. The EtherJet CardBus Ready Port Adapter Setup window opens, displaying the default settings.
11. Click **OK**. The Network Settings window reopens.
12. Click **OK**. The Network Settings Change window opens.
13. Click **Restart Now** to restart your computer.

Removing the CardBus adapter from NT 3.51

1. Double-click the **Control Panel**. The Control Panel opens.
2. Double-click the **Network icon**. Network Settings opens.
3. Choose the **IBM 10/100 Etherjet CardBus Adapter**.
4. Click **Remove**.
5. Click **Yes** to confirm.

Windows NT driver parameters

IBMC.SYS, IBMCNT.SYS, and IBMCN4.SYS driver parameters can be modified using the Windows NT Network Control Panel. This applet uses the OEMSETNT.INF file to set the corresponding parameters in the registry.

Note: For definitions of the keywords listed, see the section Keyword Reference in "Chapter 4. Diagnostics and troubleshooting" on page 15.

Parameter	Default	Valid Values	Registry Value
DirectEnable	0	AutoDetect OFF ON	0 1 2
EarlyTransmit	0	OFF ON	0 1
InterruptNumber	11	3-15	Same

Parameter	Default	Valid Values	Registry Value
InterruptStyle	0	AutoDetect PCI IRQ ISA IRQ	0 1 2
IOBaseAddress	0xF500	0x1000-0xF800	Same
LineSpeed	0	AutoDetect 10 Mbps 100 Mbps	0 1 2
LineMode	0	AutoDetect Half-Duplex Full-Duplex	0 1 2
LinkIntegrity	1	OFF ON	0 1
MemoryMapped BaseAddress	55B84000	0xC0000-B000C000	Same
Socket	0	AutoDetect 1 2 3	0 1 2 3
CableDetect	ON	OFF ON	0 1
AutoPolarity	ON	ON OFF	1 0
DynamicLinkDetect	ON	ON OFF	1 0

For network administrators only:

Note: The network node address can be modified manually:

1. Using the Run command, type **regedit** and press **Return**.
2. Select **HKEY_LOCAL_MACHINE**, **System**, **CurrentControlSet**, **Services**, **IBMC**.
3. Click on the **Edit** menu, select **New**, press **String Value**.
4. Rename the new value **NetworkAddress** (no spaces, case sensitive) and press **Enter**.
5. Then double-click **NetworkAddress** and enter the 12-digit address (no spaces) in the "Value Data" box and click **OK**.

Chapter 4. Diagnostics and troubleshooting

This chapter contains supplementary diagnostics and troubleshooting information for the EtherJet CardBus Ready Port Adapter. For troubleshooting information specific to your operating environment, see the appropriate installation chapter. This supplementary information is intended for users or network administrators who are already familiar with the EtherJet CardBus Ready Port Adapter and its user documentation, and who have run into difficulties after having completed the appropriate installation and troubleshooting procedures for their operating environment.

Note: For additional troubleshooting information, see the Windows Help file HELPDOCS.HLP on the adapter CD-ROM.

The following topics are covered in this chapter:
- Diagnostic Test
- Troubleshooting Checklist
- Keyword Reference (All Drivers)

Additional sources of information

Consult your computer and network documentation as needed. For the latest technical notes on the EtherJet CardBus Ready Port Adapter, see the **README.TXT** file on the adapter CD-ROM.

See "Appendix A. Product support services" on page 21 for IBM support services access information.

Diagnostic self tests

IBM provides both a DOS-based and Windows-based self-test diagnostics program. The programs test several EtherJet CardBus Ready Port Adapter functions. It also reports test results, the serial number of the unit, and the node address.

Program	For Use With	Diskette Found On
IBMCTEST.EXE	DOS, Win 3.X	adapter CD-ROM
EJETDIAG.EXE	Win 95, 98, NT	adapter CD-ROM

Note: IBMCTEST can be run only from the MS-DOS command line. It cannot be run from a DOS box within Windows.

Executing the MS-DOS/Windows 3.x diagnostic program (IBMCTEST.EXE)

Use the following steps to execute the self-test.

1. Install the EtherJet CardBus Ready Port Adapter according to the instructions contained in "Chapter 1. Hardware installation" on page 1.
2. Power down and restart the computer from MS-DOS. Do not load a network driver.

Note: Do not run IBMCTEST with a network driver loaded. Loading a network driver before running IBMCTEST may cause unpredictable results when exiting the test utility.

3. Type **IBMCTEST** at theMS-DOS prompt and press **Enter**.

Main screen

The program consists of several function buttons and a view pane. Pressing or invoking a function will bring up the corresponding panel in the view pane. This view remains until another is selected. To exit IBMCTEST type **x** or push the **Exit** button.

When a function is active, the button appears to remain down or pushed. Once the button pops up, the function is completed and the screen is a passive results display.

Nine functions can be invoked by pushing the associated button on the main panel, using the highlighted letter indicated on the button, or the left mouse button. Online help is provided.

Note: Write down the EtherJet CardBus Ready Port Adapter model and serial numbers for reference.

IBM utilities

The Windows 95, 98, and NT diagnostic program and README documentation will be installed when you execute SETUP.EXE from the adapter CD-ROM. After installing the EtherJet CardBus Ready Port Adapter, perform the following steps:

1. Select **Start → Run**.
2. Type *path***setup**, where *path* is the drive containing the adapter CD-ROM, and follow the instructions on the screen to complete the installation.
3. Select **Start → Programs → IBM Utilities** to run the diagnostic program or view the README documentation.

Executing the Windows 95, 98, and NT diagnostic program (EJETDIAG.EXE)

1. Make sure the EtherJet CardBus Ready Port Adapter is installed and has been configured to work in your version of Windows.
2. Insert the adapter CD-ROM.
3. Select **Start**, **Run**, *path***EJETDIAG.EXE**, where *path*\ is the drive containing the adapter CD-ROM.
4. Navigate through the diagnostic program by clicking on the appropriate tab. When finished, click **OK** to exit.

Troubleshooting checklist

- For Windows 3.x installation and troubleshooting information, see HELPDOCS.HLP on the adapter CD-ROM.
- Review the README.TXT file on the adapter CD-ROM.
- Be sure you have the current drivers for your adapter. You can check the version numbers on the IBM Web site at: http://www.ibm.com/networking/support.
- When loading drivers or running the test utility, keep the LAN adapter cable attached to the EtherJet CardBus Ready Port Adapter.
- Under Novell, ensure that the FRAME TYPE you are using is the same as that of the file server. The server frame type should be specified as the first frame type in the NET.CFG.
- In a twisted pair environment, try plugging directly into the hub or concentrator.
- Plug in to a known working network connection.
- Try using the EtherJet CardBus Ready Port Adapter on a different computer.
- Try another IBM adapter, if available.
- Test the IBM adapter without loading Card and Socket Services to prevent conflicts between the IBM adapter and Card and Socket Services. The interrupt, memory address location, and I/O address for Card and Socket service drivers must match the IBM configurations in NET.CFG or PROTOCOL.INI (if used).
- Make sure that the IBM interrupt, memory address, and I/O address do not conflict with other installed hardware (such as sound cards, CD-ROM drives and PEN devices).
- Try loading the CardBus drivers at different memory locations (for example: C800, CC00, D400, D800).
- Try using different interrupt locations (for example: 9, 10, 11).
- Try using different port addresses (for example: 280, 290, 310, 320).

Keyword reference (all drivers)

CABLEDETECT turns cable detect feature on or off. When on, cable detect puts the adapter in a low power mode when it senses there is no LAN cable attached.

CACHE sets system cache line size on the CardBus bridge. Values are system-dependent and may include only 0 (cache disabled), 4, 8, 16, or 32. Changes could affect network performance.

DIRECTENABLE(32–bit NDIS3 Driver IBMC.SYS) forces method used by driver to determine if an EtherJet CardBus Ready Port Adapter is present. Valid parameters are AutoDetect, Off, and On. AutoDetect allows the driver to determine if the CardBus bridge has already been set up by another enabler such as Socket and Card Services. If so, the driver will use the current configuration. On forces the driver to enable the CardBus bridge without checking its current state.

DRIVERNAME=IBM$ required as the first item in the IBM section of the PROTOCOL.INI file for the IBMCNDIS driver.

EARLYRECEIVE see NOEARLYRX.

EARLYTRANSMIT see NOEARLYTX.

ERT specifies Advanced Look-ahead Pipelining threshold. Valid settings are LOW, MEDIUM, and HIGH. Changing this value affects network performance, depending on the computer system.

INT, INTERRUPTNUMBER see IRQ

INTERRUPTSTYLE (For 32–bit NDIS3 Driver IBMC.SYS only) forces the driver to use ISA IRQ routing or PCI IRQ routing. Some CardBus bridges have the capability of supporting both PCI and ISA style IRQ routing. Valid parameters are AutoDetect, PCI-IRQ, and ISA-IRQ. The default keyword is AutoDetect.

IOADDRESS, **IOBASEADDRESS** specifies the base I/O address of the EtherJet CardBus Ready Port Adapter I/O ports, in hexadecimal notation. The EtherJet CardBus Ready Port Adapter requires 128 contiguous I/O addresses if run in I/O mode. If using memory-mapped I/O mode, no I/O ports are necessary. If this parameter is not specified, the driver detects an I/O port automatically.

I/O PORT see IOADDRESS.

IRQ specifies a hardware interrupt for the adapter. If PCI interrupts are used on the CardBus bridge, this parameter is ignored (unless the ISAIRQ keyword is used as an override). If this parameter is not specified the driver will detect an IRQ automatically.

ISAIRQ use this keyword to force the driver to use ISA IRQ routing. Some CardBus bridges support both PCI and ISA style IRQ routing. The driver automatically determines the best choice for this option unless this keyword is used as an override.

LATENCY specifies the latency timer for the CardBus bridge. This parameter affects the bus mastering capabilities of the EtherJet CardBus Ready Port Adapter. Changing this parameter may affect system performance. The range is a decimal number from 1 to 255. The default is 32. The latency should be lowered if more

than one peripheral device, such as a modem, is being used. If the EtherJet CardBus Ready Port Adapter is the only peripheral being used, use a higher latency, such as 255.

LINEMODE (for 16-bit DOS drivers) selects either half-duplex or full-duplex mode for the network. Valid parameters are AUTO, HALF or FULL. Selecting full-duplex enables the EtherJet CardBus Ready Port Adapter to send and receive data simultaneously when connected to a full-duplex hub. Default is AUTO.

LINEMODE (for 32-bit NDIS3 driver IBMC.SYS) selects either half-duplex or full-duplex mode for the network. Valid parameters are AutoDetect, Half Duplex or Full-Duplex. Selecting full-duplex enables the EtherJet CardBus Ready Port Adapter to send and receive data simultaneously when connected to a full-duplex hub. Default is AutoDetect.

LINESPEED (for 16-bit DOS drivers) forces operation to 10 or 100 Mbps. If the keyword is not present the line speed is automatically detected (default).

LINESPEED (for 32-bit NDIS3 driver IBMC.SYS) forces operation to 10 or 100 Mbps. Valid parameters are AutoDetect, 10 Mbps, and 100 Mbps. Default is AutoDetect.

LINKDISABLE disables link integrity for non-IEEE 10BASE-T networks such as StarLAN 10. Without this keyword in the driver command line, the driver defaults to link integrity ENABLED.

MEM, MEMORY specifies the host PC memory location for the IBM adapter in hexadecimal notation, when MODE MEMORY (memory-mapped I/O) is being used (see MODE). The memory block occupies 4 KB of host memory.

MODE when set to IO disables requests for memory-mapped mode on systems that only support an I/O-driven card. The MEMORY setting provides increased performance on computers that allow simultaneous availability of memory and I/O resources.

NETWORKADDRESS allows you to override adapter's unique network node address by specifying a different node address.

NOBURST disables burst mode reads on the EtherJet CardBus Ready Port Adapter. Using this keyword forces the adapter to initiate a bus-master request for each read, negatively impacting performance.

NOCHECK disables verification of adapter resources. If the driver detection and verification code is causing problems when loading, this keyword can be used to turn the feature off.

NODEADDRESS see NETWORKADDRESS

NOEARLYRX disables Advanced Look-ahead Pipelining features of the EtherJet CardBus Ready Port Adapter. This keyword can be used to troubleshoot systems that have inexplicable network problems. Using this keyword could negatively impact performance.

NOEARLYTX disables early transmit capability of the EtherJet CardBus Ready Port Adapter. This keyword can be used to troubleshoot systems with inexplicable network problems. Using this keyword could negatively impact performance.

NOLED turns off LED indicators to conserve power.

NOPREFETCH disables prefetching in memory-mapped I/O mode by turning off this capability on the CardBus bridge. Using this keyword could negatively impact performance.

NOWRITEPOST disables write posting by turning off this capability on the CardBus bridge. Using this keyword may negatively impact performance.

PCIIRQ forces the driver to use PCI IRQ routing. Some CardBus bridges have the capability of supporting both PCI and ISA style IRQ routing. The driver automatically determines the best choice for this option unless this keyword is used as an override.

PORT (ODI driver) see IOADDRESS.

RXBUFFERSIZE sets size of the adapter receive packet buffer. This is a number in decimal in the range 1–30 for 16–bit drivers and 1–100 for the 32–bit ODI driver. Each packet adds approximately 1520 bytes to the resident size of the driver. The default is 15 packets.

SINT (Packet Driver) is a number from hexadecimal 60 to 80 designating a software interrupt. Default is 60.

SOCKET (16–bit DOS Drivers) identifies number of host computer PC Card slot into which the CardBus adapter is inserted. If a socket number is specified, only the specified socket is checked for the IBM adapter. If no socket is specified, all sockets are searched until the IBM adapter is found.

SOCKET (32–bit NDIS3 Driver IBMC.SYS) identifies number of host computer's PC Card slot or socket into which the EtherJet CardBus Ready Port Adapter is inserted. Valid parameters are AutoDetect, 1, 2, 3, and 4. If a socket number is specified, only the specified socket is checked for the EtherJet CardBus Ready Port Adapter. The default keyword is AutoDetect, and the driver automatically checks all slots for the EtherJet CardBus Ready Port Adapter.

TXBUFFERSIZE sets the size of the adapter transmit packet buffer. This is the number of transmit packets in decimal in the range 1–10 for 16-bit drivers and 1–100 for the 32-bit ODI driver. Each packet adds approximately 1520 bytes to the resident size of the driver. The default is 2 packets.

VERBOSE displays additional configuration information when the driver loads, including information about the CardBus controller on the PCI to CardBus bridge on the host computer.

Appendix A. Product support services

Help files

The HELPDOCS.HLP file, contained on the adapter CD-ROM, provides detailed information about the EtherJet CardBus Ready Port Adapter.

Topics include:
* Windows 95, 98, and NT
* IBM OS/2 Help
* 32-Bit ODI Help
* Windows 3.x Help
* IBM Product Support

IBM product support

You can download the latest drivers, related code, technical tips, and product information from the 10/100 EtherJet CardBus Adapter Web site at:

`http://www.ibm.com/networking/support`

For information regarding other IBM Networking Products, go to the IBM Networking Home page:`www.ibm.com/networking`

You can call the following telephone numbers for IBM product support::
* 1 800 772-2227 for IBM HelpCenter®
* 1 800 565–3344 for HelpPC (Canada)

Warranty service procedures

For details about warranty coverage and service, see "Statement of Limited Warranty" on page 29.

Appendix B. Specifications

General specifications

Model EtherJet CardBus Ready Port Adapter

Cable:

100BASE-TX-unshielded twisted pair for use on Category 5 (data grade) cabling; 10BASE-T-unshielded twisted pair (UTP) Category 3 or better cabling.

Connector:

RJ-45

Operating Distance:

328 ft (100 m)

Ethernet specifications

Ethernet IEEE 802.3 for 10 Mbps, 802.3u for 100 Mbps

Type III CardBus PC Card

10/100 Mbps full-duplex

Size:

3.37 in. (86 mm) x 2.13 in. (54.0 mm) x 0.413 in. (10.5 mm) excluding adapter cable and network connection

Weight:

1.3 oz (36 g)

Power Requirements:

10BASE-T
3.3 V dc, 50 mA idle, 165 mA active, 100 mA typical

100BASE-TX
3.3 V dc, 125 mA idle, 135 mA active, 130 mA typical

Power Management:
Supports ACPI, CardBus Power Management Specification, Magic Packet™, and Wake on LAN

Temperature Range:

Operating:

32°F to 149°F (0°C to 65°C)

Storage:

-4°F to 185°F (-20°C to 85°C)

Humidity:

95% maximum noncondensing

LEDs: Link integrity, transmission activity

Certification:

FCC Part 15, Class B

CE Mark (EN55022, Class B, EN50082)

Appendix C. Notices

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Telecommunications Safety Requirements in the United Kingdom

This IBM product is made to high safety standards. It complies inherently with telecommunications safety standard BS 6301. It is not designed to provide protection from excessive voltages appearing externally at its interfaces. Therefore, when this product is connected to a public telecommunications network via any other equipment, and you connect to this product items not supplied by IBM United Kingdom Ltd., you must comply with mandatory telecommunications safety requirements.

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

Federal Communications Commission (FCC) Statement

IBM 10/100 EtherJet CardBus Ready Port Adapter

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 or 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 IBM authorized dealer or service representative for help.

IBM is not responsible for any radio or television interference caused 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, NY 10504
Telephone: 1-919-543-2193

FC Tested to Comply
With FCC Standards

FOR HOME OR OFFICE USE

Industry Canada Class B Emission Compliance Statement

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

Avis de conformité aux normes d'Industrie Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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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. IBM cannot accept responsibility for a failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

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Dieses Gerät ist berechtigt in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

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Statement of Limited Warranty

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Machine 10/100 EtherJet CardBus Ready Port Adapter

Warranty Period* Lifetime

*Contact your place of purchase for warranty service information.

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Each Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's warranty terms apply.

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   and
2. where applicable, before service is provided—

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10/100 EtherJet CardBus Ready Port Adapter
Installation and Planning Guide

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	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Overall satisfaction	☐	☐	☐	☐	☐

How satisfied are you that the information in this book is:

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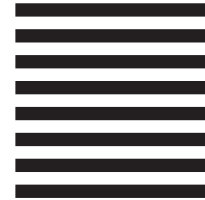
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