CardBus 10/100 Fast Ethernet PC Card

User Manual

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

REGULATORY STATEMENTS

FCC Certification

The United States Federal Communication Commission (FCC) and the Canadian Department of Communications have established certain rules governing the use of modems and other electronic equipment.

FCC Part 68 Registration

The high speed PC card FAX/MODEM is registered with the FCC as compliant with the rules of Part 68, and use of this modem is subject to the following restrictions:

1. The Federal Communication Commission FCC has established rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.

2. If this device is malfunctioning, it may also be causing harm to he telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.

3. The telephone company may make changes in it's facilities, equipment, operation and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the with the FCC.

4. If the telephone company requests information on what equipment is connected to their lines, inform them of:

   a. The telephone number which this unit is connected to

   b. The ringer equivalence number.

   c. The USOC jack required.

   d. The FCC Registration number.

Items (b) and (d) are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the REN's of all the devices on any one line should not exceed 5.0. If too many devices are attached, they may not ring properly.

FCC Part 15 Registration

This modem complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interface, and

2) this device must accept any interface received, including interface that may cause undesired operation.

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 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 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 distance 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 experienced radio/TV technician for help.

CTR 21 pan-European Certification

This equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection

to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point. In the event of problems, you should contact your equipment supplier in the first instance.

This device is designed to work with the notified networks in all EC member states. Nevertheless, some of the network services in invidual countries might not be supported, but they will not affect the normal data and fax applications. For example, the metering charge service in Germany. Besides you may encounter difficulty of using PULSE dialing function in some of the countries, such as Nordic countries. This kind of network compatibility is dependent on the physical and software settings of this device. If the users are desired to use this device on those networks, they should contact the vendor or supplier first.

Table of Contents

ABOUT THIS MANUAL

This manual will explain how to install and use your 10/100Mbps dual speeds Fast Ethernet PC Card. The following guideline will help you through the installation process.

Chatper 1 presents you the basic information about the CardBus technology. It also provides some methods to ensure your notebook are CardBus equipped and correctly configured.

After you already make sure your mobile computer is ready to run CardBus 10/100M Ethernet PC Card. You can go on the **Chapter 2** to know how to install the PC Card and Connect it to network.

The CardBus 10/100M Ethernet PC Card provides wide range of driver's software to meet your need. You can pick up the section within **Chapter 3** to install and configure the network driver.

The Questions and Answers listed in the **Chapter 4** give you some solutions when you encounter problem during installation of the network drivers.

Finally you can find the detail specification of this innovative product in the **Appendix A**.

System Requirements

- An IBM compatible notebook computer with 486 or faster processor with CardBus supported socket.

- Drivers and utilities provided with this product

- PCMCIA PC Card compliant Card Services and Socket Services
- 100Base-TX Fast Ethernet or 10BaseT Ethernet connectivity to your local area network.

Operating Environments

- Windows 95, Windows 95 OSR2, Windows 98/ME
- Windows 2000
- Novell Netware 3.x, 4.x
- Microsoft Windows NT 3.51, NT 4.0

INTRODUCTION TO CARDBUS

Cardbus is the next generation 32-bit version issued by PCMCIA PC Card standard. In addition to support a wider bus (32 bits instead of 16 bits), CardBus also supports bus mastering and operation speeds up to 33 MHz. The 132MBytes bus transfer rate (compares with legacy 16-bit I/0 PC Card, 20MByte) provides the mobile user to enjoy the high-bandwidth network connection.

A Mobil computer, which equipped with CardBus and properly configured is the fundamental requirement to use the CardBus 10/100M PC Card. To make sure about this point, please follow the guideline listed below:

- Cardbus is designed to support both 16-bit and Cardbus Card. But the legacy 16-bit PC Card slot couldn't accept the CardBus PC Card. In order to prevent the wrong operation, CardBus is thus developed with particular mechanical consideration to prevent it fit into the legacy 16-bit PC Card Slot. If you can't insert the CardBus 10/100 PC Card into the slot firmly reaching the bottom, your notebook probably hasn't the capability to support CardBus technology. Please check your notebook manual for detail information.

NoteBook with only
16 bit PC Card
Capability

16bit
PC Card
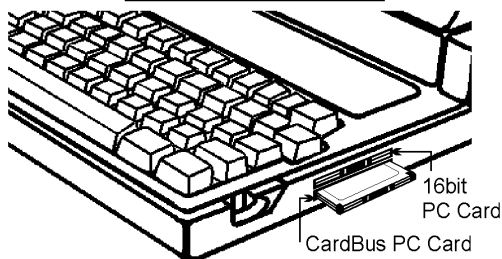
CardBus PC Card

CardBus equipped
NoteBook

16bit PC Card
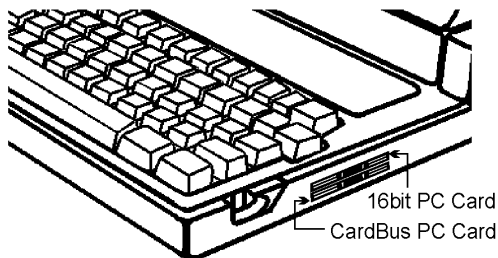
CardBus PC Card

- Due to variant design of notebook computers, some models implement a setting in the Computer's BIOS to switch between Cardbus and 16-bit PC Card modes. You could consult the User's Guide of your notebook and properly set on the **CardBus** or **Auto_Detect** mode.

HARDWARE INSTALLATION

This chapter describes how to install the CardBus 10/100M dual-speed PC Card in your notebook computer and connect it to network. It's referred to "the PC Card" in this manual.

The PC Card could be connected to either 100Mbps Fast Ethernet or 10Mbps Ethernet. The PC Card has the ability of automatic sensing and operating on either speed without manual recofiguration.

After finishing the installation of PC Card into your Notebook, please refer to **Chapter.3 Software Installation** on how to install network drivers using menu driven installation utility.

Inserting the CardBus Dual-Speed PC Card

1. Hold the CardBus PC Card with wide connector toward the slot and the brand lable facing upward.

2. Insert the CardBus PC Card and push it firmly into the bottom. (Please see the figuer on the next page for reference)

Removing the CardBus Dual-Speed PC Card

It's quite different for various computer mechanical designs. Please refer to the PC Card removal instruction in the document for your notebook computer.

Notebook
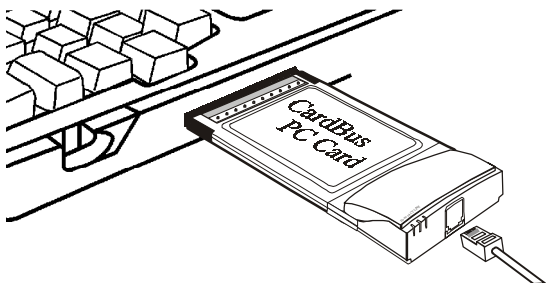
Connecting to the Network

Connect RJ-45 port of the CardBus 10/100 Ethernet PC Card Adapter to the Category 5 Network cable before loading any network driver.

- For operation in the 100Mbps (100Base-TX) Ethernet network, a Category 5 unshielded twisted pair (UTP) cable should be used to connect between the RJ-45 port and 100Mbps hub or switch.

- For operation in the 10Mbps (10Base-T) Ethernet network, Category 3, 4 or 5 unshielded twisted pair (UTP) cable could be used to connect between the RJ-45 port and a 10Mbps hub or switch.

LED Indicators
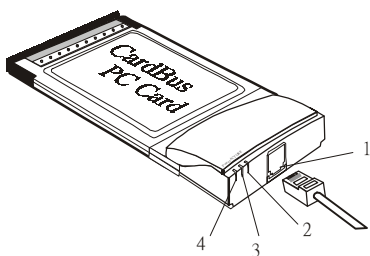
1.   **RJ-45 port**: connects to the Category 5 Ethernet Network Cable.

2.   **LINK 10** LED indicator: glows green when operated in the 10Mbps Ethernet network.

3.   **LINK 100** LED indicator: glows green when operated in the 100Mbps Ethernet network.

4.   **ACT** LED indicator: blinks orange when the CardBus 10/100 Ethernet Attached Port PC Card Adapter is transmitting/receiving data.

SOFTWARE INSTALLATION

Extensive software drivers have been developped for CardBus 10/100M PC Card including DOS-Mode, Microsoft Windows 3.x, Windows 95, Windows NT. Some of the Operating Systems and PC Card/Socket Services haven't been well implemented to support new CardBus technology at the present time. Our unique drivers and utility enable the CardBus 10/100M Ethernet PC Card to run almost all the major environments.

This Chapter consists four main parts: **Windows 95**, **Windows 98/ME**, **Windows 2000**, **Windows NT 4.0**, **Windows NT 3.5x** and various configurations in **DOS-mode**. The user could refer to specific section for installation.

Windows 95 Installation

Windows 95 released two major versions at the time when this manual is written. The first version (refer to "*Native Windows 95*" afterward) supports for 16-bit PC Card but not for CardBus PC Card. The latest version Windows 95 with OEM Service Release #2 (refer to *OSR2 Windows 95 or later*) supports both 16-bit and CardBus PC Card. The CardBus 10/100M Ethernet PC Card could operates in either Native or OSR2 version Windows 95 environments. However, the installation procedures are different. The section will presents you how to identify your version of Windows 95 first. Then you could decide which kind of installation process should be followed:

Determining the Version of Windows 95

1. After successfully booting and login the Windows 95. Click on the **Start Button.**

2. Select the **Settings.**

3. Select the **Control Panel.**

4. Within the Control Panel, double-click the **System** icon.

5. Select the **General** Tab, this system information will displayed that like the following figure.
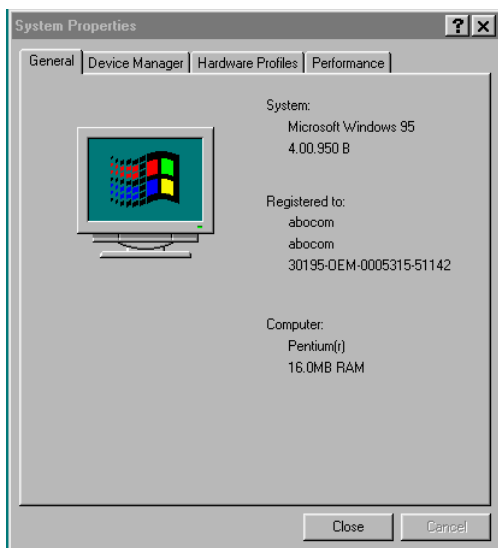

Version Information here!

- 4.00.950 or 4.00.950a is first released Windows 95 which doesn't support CardBus. Refer to Native Windows 95 section for installation.

- 4.00.950B is Windows 95 with OEM Service Release #2, which supports both PC Card and CardBus PC Card. Refer to OSR2 Windows 95 or Later section for installation.

Native Windows 95

Though Non-OSR2 Windows 95 doesn't support CardBus PC Card, you could use our driver to run the CardBus 10/100M Ethernet PC Card.

1. Insert the Cardbus 10/100M Ethernet PC Card into the socket.

2. Click on the **Start** button.

3. Select **Setting**

4. Select **Control Panel.** And the **Control Panel** shows up.

5. Double-click the **Network** icon. And the **Network** Menu prompts up**.**

6. Click the **Add** button. And **Select Network Components Type** Menu shows.

7. Double-click the **Adapter**. The **Select Network Adapters** Menu opens.

8. Click the **Have Disk** button. The Install From Disk Menu shows.

9. Insert the Drives Disk.

10. Enter A:\ in the input box. Click **OK**.

(Or type the path named wherever you place   the driver programs)

11. Select the "**CardBus Fast Ethernet 10/100 Adapter manual load**"
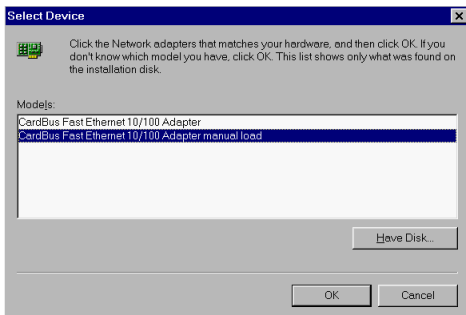
12. Click **OK.** A dialog box will appear to adjust the driver's settings. The resources assignment to adapter should be uniqe in the system.

13. The **Newwork** window reopens.

14. Click **OK.**

15. Insert your original Windows 95 CD or disk set. Input the drive, which contains the source. Click **OK**

16. After the copy file process is completed, the system will prompt you to restart the Computer.

17. For the first time installation, you need to go to the Network in the Control Panel to setup the protocols, clients and services properly according to your need.

Note: If you start the computer without the CardBus 10/100 Ethernet PC Card installed in the socket, the native Windows 95 system will prompt you the warning message "**Your Network Adapter CardBus Fast Ethernet 10/100 Adapter manual load" [0001] is not working properly. You may need to set it up again. For more information, see the network troubleshooting in the windows Help".**

If you don't need to use the CardBus 10/100 PC Card at this time, you can just ignore the message. Otherwise, you need to insert the CardBus 10/100 Ethernet PC Card into the CardBus socket and just restart the native Windows 95 again to make the Card work functionally.

OSR2 Windows 95 and Later

Windows 95 OSR2 and later versions support both CardBus and 16-bit PC Card. That is, you could run the 16-bit PC Card and CardBus 10/100M Ethernet PC Card simultaneously with the plug-n-play support. In addition to the plug n-play support of both types of PC Card, the user also could perform the Hot Swap function provided by the Card and Socket Service built in the OSR2 Windows 95 or later.

1. After the Windows 95 OSR2 is successfully booting, insert the CardBus 10/100 Ethernet PC Card into the CardBus Socket.

2. Click Next on Update Device Drivers Winzard.

3. Click The Others Locations button.
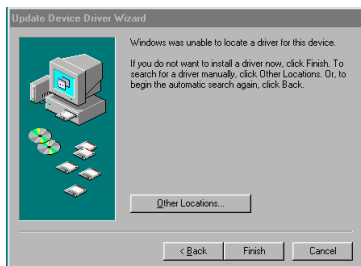
4. Insert driver diskette into the floopy disk.

5. Type **A:** .The driver will be installed and you may be asked for the original Windows 95 CD/disks.

6. For the first time installation, please click **Network** icon in **Control Panel** to add Protocols, Client and Service if you needed

7. Reboot the machine and the card will function well.

Windows 98/ME Installation

1. When the CardBus 10/100 Ethernet Attached Port PC Card Adapter is well inserted into the PC Card slot of your system, the following dialog box will appear automatically and prompt you to insert the network device driver. Click **Next** to proceed.
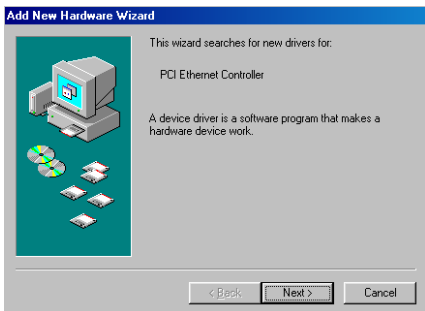
2. Select **Search for the best driver for your device(recommended)** and click **Next.**
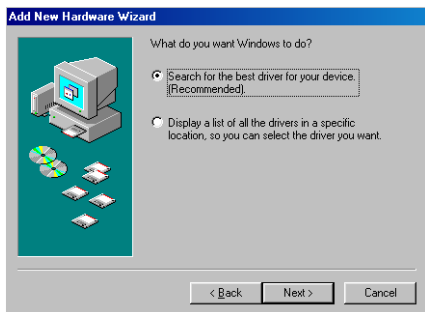
3. Select **Floppy disk drives** and click **Next** to proceed searching.

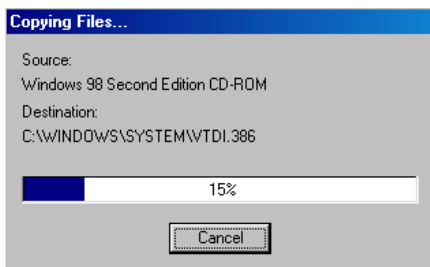4. Windows has found the appropriate driver for the network device. Click **Next** to install. If Windows asks you to supply the original Windows 98/ME installation CD-ROM, you'll need to place it into the CD-ROM drive for the software installation need.

5. Wait for a while until the file copy is finished.

Copying Files...

Source:
Windows 98 Second Edition CD-ROM
Destination:
C:\WINDOWS\SYSTEM\VTDI.386

15%

Cancel

6. Click **Finish**. The software installation is successfully completed.

Add New Hardware Wizard

CardBus Fast Ethernet Attached Port PC Card

Windows has finished installing the software that your new hardware device requires.

< Back   Finish   Cancel

Windows 2000 Installation

1. When the CardBus 10/100 Ethernet Attached Port PC Card Adapter is well inserted into the PC Card slot of your system, the following dialog box will appear automatically. Click **Next** to proceed.

2. Select **Search for a suitable driver for my device(recommended)** and click **Next.**
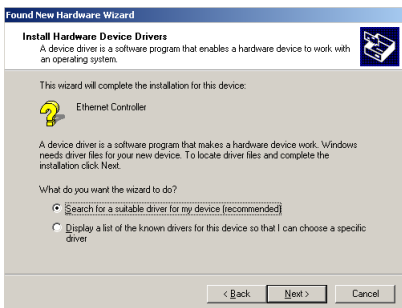
3. Insert the network device driver into the disk drive and click **Next.** Windows will start searching for the appropriate driver for the software installation.
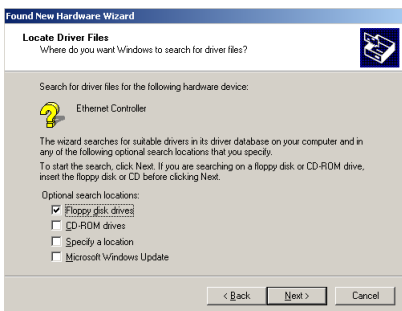
4. Wait for a while until the appropriate driver is found.

5. Click **Yes** to continue.

Digital Signature Not Found

The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.

The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.

CardBus Fast Ethernet Attached Port PC Card

If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.

Do you want to continue the installation?

[Yes] [No] [More Info]

6. Click **Finish**. The software installation is successfully completed.

Found New Hardware Wizard

Completing the Found New Hardware Wizard

CardBus Fast Ethernet Attached Port PC Card

Windows has finished installing the software for this device.

To close this wizard, click Finish.

[< Back] [Finish] [Cancel]

Windows NT 4.0 Installation
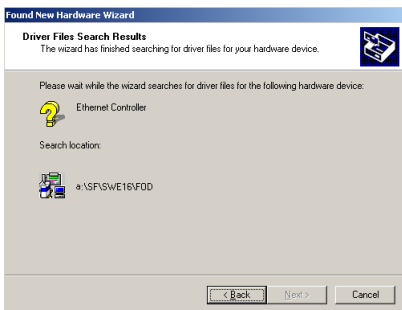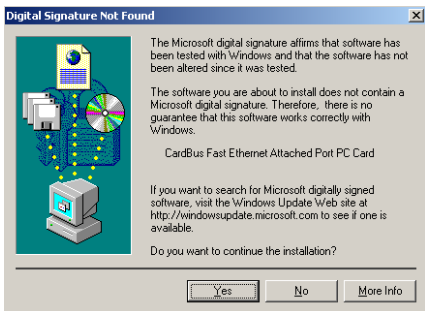
Assumed that the Network Services already installed in the NT 4.0 system.

1. Insert the CardBus 10/100 Ethernet Attached Port PC Card Adapter into any one of PC Card Slots in the system

2. Power on Windows NT 4.0

3. Open **My Computer**

4. Open **Control Panel** icon

5. Double-click the **Network** icon

6. Select **Adapters** tab.

7. Press **Add to add network** adapter

8. Press **Have Disk** button

9. Insert the driver disk into floppy drive

10. Specify the path to **" A:\"** and press **OK.** (Or type the path name wherever you place the driver programs)

11. A dialog box will appear to adjust the driver's settings. The resources assignment to the adapter must be unique in the system.

12. Press **OK** when all setting are completed.

13. Press **Close** to complete network setting.

Windows NT 3.5x Installation

1. In Main Group of NT 3.5x, open **Control Panel** and click on **Network** icon.

2. In **Network Settings** dialog box, push **Add Adapter...** button. The **Add Network Adapter** dialog box will appear.

3. Choose **<Other> requires disk** from manufacturer" from the network adapter card list and press **Continue.**

4. When Windows NT prompts for manufacturer disk, insert driver diskette and press OK until the Network Setting Change dialog box appears.

5. Restart now to have the card take effect.

DOS Mode Installation

The pure DOS mode , not the DOS prompt under the Windows 95 or Windows NT, doesn't support any PC Card device. Many BIOS vendors develop the Card services and Socket Sevices for DOS. Because the CardBus technology is new to market, all the current shipping versions of Card and Socket Services don't support CardBus PC Card. We implements the DOS driver sets with this acknowledge in mind. All our DOS mode drivers were built to include the Direct Enabler in them to fulfill the essential of DOS mode Card Service and Socket Service program.

Besides, We provide a menu driven installation utility to help you install the various drivers in the DOS mode. Just plug the driver diskette into the floppy drive and set the current drive to the floppy drive. Then run *INSTALL* to install the real mode drivers such as ODI or NDIS 2.x or Packet Drivers into the target disk.
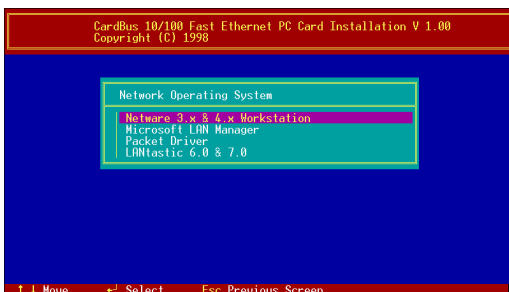
Novell NetWare

There are two methods to install the Netware client ODI driver, the menu installation and Netware 3.12 or 4.x Client installation.

Menu Installation

1. Run *INSTALL.EXE* from the root directory of driver diskette.

2. Select *Netware 3.x and 4.x Workstation"* item from menu.

3. Move cursor to focus on the setting you want to make change and press <Enter>" to select a fit value. When the configurations are set completely, press <Enter> on the **OK**" field to exit the screen and go back to step 3.

4. Installation program starts copying related files from diskette to the destination directory and modifies AUTOEXEC.BAT and NET.CFG under user's agreement

5. Now, the installation is completed. Please reboot the computer to make your Netware connection.
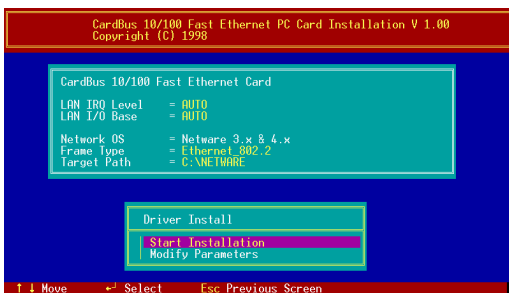
If you wanted to install the ODI driver by manual, you may follow the instruction list below.

1. Copy the files CB103.COM and NET.CFG from the path \NETWARE in the driver diskette into the Netware client directory containing Novell's LSL.COM, IPXODI.COM and NETx.COM files.

2. Using a text editor to edit the NET.CFG for setting the default frame type. In the Netware server the frame type is set to 802.3 for NW3.11 and 802.2 for NW3.12 and NW4.x . The frame type must be set to the same with the server or the client couldn't login to the server.

3. Follow Novell's instructions on using ODI programs. You can substitute the CB103.COM whenever a reference is made to the **Hardware Specific Module**.

4. A typical ODI workstation startup batch file includes:

>LSL ;Link Support Layer Module provided by Novell

>CB103 ;Hardware Specific Module

>IPXODI ;IPX Protocol Stack Module provided by Novell

>NETx ;Shell Support Module provided by Novell

>LOGIN

Novell Client Installation

1. Run the NetWare Client Install V1.21

   -Get the 4 Client disks from the network administrator, or

   -Run the \NWCLIENT\INSTALL.EXE in a previous Installation

2. A message appears on the screen asking you whether or not you want the program to perform modifications on your AUTOEXEC.BAT and CONFIG.SYS files.

3. Answer "Yes". The program then modifies your AUTOEXEC.BAT and CONFIG.SYS files accordingly and creates backup copies.

4. The following message appears:

   -Install support for MS Windows? (Y/N):

5. Answer accordingly and provide a path if necessary.

6. The program displays the following:

   -Configure your workstations for backup by a NetWare server running software such as BACKUP? (Y/N):

7. Answer accordingly and provide a path if necessary.

8. Select a driver for your network board.

9. From the driver list, select **Other Drivers**.

10. Go to the Insert the Driver Disk dialog box and specify the path where the ODI driver and INS files reside. For example: C:\ODI.DOS.

11. Press **Enter** and select the target ODI driver.

12. Specify the driver's optional settings.

13. Press F10 to save to new configuration.

14. Highlight "Install press here" and press <Enter> to install.

The program copies the necessary files for NetWare Client. Continue the installation procedure to completion. Upon completion, a new NET.CFG file will be created in your DOS directory. Typically, this file contains the following lines:

Link Driver CB103

#FRAME Ethernet_802.3

FRAME Ethernet_802.2

15. An STARTNET.BAT for the ODI workstation performs as the following

SET NWLANGUAGE=ENGLISH

--Set NetWare 4.X to English language

LSL--Link Support Layer Module provided by Novell

CB103--Hardware Specific Module

IPXODI--IPX Protocol Stack Module provided by

   Novell

VLM--DOS Support Module provided by Novell

F:--Change to connected device

LOGIN xxx--Login to file server as user xxx

16. Run STARTNET to access the Novell network.

QUESTIONS & ANSWERS

This chapter provides a number of examples of Questions (Q:), Causes (C:), and Answers (A:). If your LAN is not functioning properly, look up the problem here, or ask your dealer for technical assistance.

Q:When I run the DOS real mode driver, it reports that "CardBus PC Card are not present", but I did install the CardBus PC Card in the slot?

A:Currently, there are no PC Card/Socket Service which supports CardBus socket in the DOS mode. We already built the direct enabler into each DOS mode drivers to active the CardBus PC Card. Following check list could help you identify the problem.

1. If you install some other DOS mode Card/Socket Service from AMI, Award, Phoenix or SystemSoft…etc, please disable them by comment out these drivers in the CONFIG.SYS file.

2. If memory management software e.g. EMM386 has been installed, you have to reserve some area in upper memory (C000:0 -- EFFF:F) for attribute memory of PCMCIA card during enabling the card. Example: Device=C:\DOS\EMM386.EXE   RAM X=D000-D3FF. Reserve D000 - D3FF for attribute memory.

Q:When I run the DOS real mode driver, it reports that "PCI-to-CardBus bridge are not present", but my notebook is equipped with the CardBus socket?

A:Some notebook computer, for example, Toshiba, needs to enable the System's BIOS setting to support CardBus environment. Pleae check your user manual to find the detail information.

Q:How come I see the message "UnKnown PCI-to-CardBus bridge" when I try to load the driver in DOS mode?

A:The CardBus controller is rolling out from time to time. The driver set of CardBus 10/100M Ethernet PC Card support all the CardBus controllers on the current market. We will continue to revise our driver to support any new CardBus controller come to the market. If you encounter this message, please contact your local dealer to get the newest driver set. If you still have problem with it, please contact us to further support.

Q:The ODI driver is run successfully but fail to login to the Netware server

C:Frame type incompatible with server or Interrupt miss match.

A:The default frame type for NetWare 3.11 and before is 802.3 but it is changed to 802.2 in NetWare 4.x and 3.12. You may check the content of NET.CFG to see if the frame type is acceptable by the server. If the frame type cannot accept by server, please edit NET.CFG to change the frame type at client site or add the frame type can be accepted at sever site driver.

SPECIFICATIONS

Network Interface Specifications:

- 10Mbps Ethernet:IEEE 802.3 standard 10BaseT baseband CSMA/CD local area network.

- 100Mbps Ethernet:IEEE 802.3u standard 100Base-TX baseband CSMA/CD local area network.

- 20/200Mbps full duplex support

- Autonegotiation between all four operation modes.

Host Interface and Physical Specifications:

- Cardbus PC Card Standard compliant.

- Type II PC Card form factor

- 3.37" x 2.128" x 0.197" (86mm x 54mm x 5.0mm)

- 40gw in weight

Operating Environments:

- Novell NetWare 3.x, 4.x

- Microsoft LAN Manager

- Packet Driver Applications

- Microsoft Windows for Workgroups 3.11, Windows 3.1

- Microsoft Windows NT 3.5x, NT 4.0

- Windows 95, 98/ME, 2000
- Lantastic 6.0

Power Requirements:

- Normal Operation:+3.3V DC, 10M: 107mA Max; 100M: 104mA Max
- Idle Mode:+3.3V DC, 98mA max

General Specification:

- LEDs: ACT, LINK10, LINK100
- Environments Ranges:

   Operating:32°F to 140°F (0°C to 60°C)

   Storage:-4°F to 158°F (0°C to 70°C)

   Humidity:10% - 90%, noncondensing
- Certifications:

   FCC, Part 15, Class B

   CE Mark (EN55022, EN55024,ClassB)