3Com Megahertz 10/100 LAN+56K* Modem PC Card User Guide

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1. x2 modems are capable of receiving at up to 56 Kbps and sending at up to 31.2 Kbps. Due to FCC regulations, receiving speeds are limited to 53 Kbps. Actual speeds may vary. Requires compatible phone line and server equipment. Complies with both the V.90 56K standard and x2 technology protocol. Standard officially determined in February 1998; ratification expected in September 1998. See http://www.3com.com/56K for details.

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1 INTRODUCTION

The 3Com® Megahertz 10/100 LAN+56K Modem PC Card (called the LAN+Modem card in this guide) links your notebook computer to a Fast Ethernet or Ethernet network and provides a high-speed modem connection to a telephone line.

The LAN+Modem card (Figure 1) complies with Personal Computer Memory Card International Association (PCMCIA) Release 2.0 and 2.1 Type II, Type III, Type IV, or JEIDA slots for PC cards.

Figure 1 10/100 LAN+56K Modem PC Card

The LAN+Modem card is a dual-function device. It supports the multifunction extensions to the 1994 PC Card standard by allowing simultaneous LAN and modem connections. Windows 95® and Windows NT® both support this multifunction specification.

Features of the LAN+Modem card include:

- Parallel Tasking® architecture for high throughput.
- Simultaneous LAN and modem connections when installed under Windows 95 and Windows NT.
- Support for both 10BASE-T (Ethernet) and 100BASE-TX (Fast Ethernet) standards.
- 56 Kbps modem using v.90 technology. 16-bit modem architecture and serial-port interface capable of up to 53 Kbps for superior modem throughput. Simultaneous compatibility between V.90 and x2 technology.

V.90 modems are capable of receiving at up to 56 Kbps and sending at up to 31.2 Kbps. Due to FCC regulations, receiving speeds are limited to 53 Kbps. Actual speeds may vary. Requires compatible phone line and server equipment. Complies with both the V.90 56K standard and x2 technology protocol. Standard officially determined in February 1998; ratification expected in September 1998. See http://www.3com.com/56K for details.

- Digital Line Guard™, which protects the card circuitry from being damaged by overvoltage from ISDN or digital PBX lines.
- Battery power conservation through automatic power management for both the LAN and modem functions.
- Diagnostics programs for Windows 95 and Windows NT that let you test and configure the card.
- Windows 95 Plug-and-Play support.
- Support for flash upgrades of modem firmware.
- Modem data transmission through cellular telephones using an optional cellular upgrade kit.
- Communications and fax software for Windows 95 (included in the package on a separate diskette).
- Driver support for Microsoft® (NDIS2, NDIS3, and NDIS4) and Novell® NetWare® (ODI) networks.
- Support for the network management capabilities of 3Com's Transcend® PC Link SmartAgent™ software.
- Distributed RMON (dRMON) SmartAgent PC software. Supported network management applications can retrieve performance data and error statistics from the LAN+Modem card.
- Lifetime warranty.

PC Requirements

- 50 Mhz 80486 or faster microprocessor
- 10MB of disk space for a complete installation, including the optionally installed speakerphone and communications software included with the LAN+Modem card
- PC Card (PCMCIA) Type II, Type III, or CardBus PC Card slot
- 3.5-inch floppy drive
- Access to a network port for a network connection
- Access to a telephone line for a modem connection

Installation and Setup Overview

The LAN+Modem card installation software performs most of the installation and setup for you. However, before installing the LAN+Modem card, you should know:

- What network operating system you will connect to
- What information you need to set up a network connection, for example, protocols used
- What modem applications you will run and what setup parameters they require

Ask your network manager or MIS technician for any setup information that you do not already have.

The steps for installing and configuring the LAN+Modem card are:

1 Run Setup to view installation instructions.

Setup runs under Windows 95, Windows NT, Windows 3.x and Windows for Workgroups.

As a precaution, when you are following software installation procedures, use AC rather than battery power.

2 Install the card in your computer.

In some cases, the Setup program will prompt when to insert the card. See Chapter 2, "Inserting and Connecting the Card," for installation procedures.

3 Load the network driver and supply the configuration information that will give you access to your network.

What driver you load depends on your network. Choosing and loading the driver are automatic as part of the Setup procedure. For Windows NT 4.0, Windows 95, Windows 3.x (including Windows 3.1 and Windows for Workgroups 3.11), and DOS, you must follow the procedures documented in this guide to manually configure the LAN+Modem card.

4 Load and configure the communications software you will use for data and fax transmissions.

Communications software is provided with the LAN+Modem card. You can also use the modem with resident communications applications such as Terminal and HyperTerminal.

2 INSERTING AND CONNECTING THE CARD

Before Inserting the LAN+Modem Card

1. Examine the contents of your LAN+Modem card kit.

   Refer to "Package Contents" in this chapter.

2. Familiarize yourself with the LAN+Modem card.

   Locate and identify the LAN and modem ports on the card. Refer to the section "Identifying the LAN+Modem Card Ports" in this chapter.

3. Run Setup.

   If your operating system is Windows 95, Windows NT, Windows 3.x, or Windows for Workgroups 3.x, the Setup installation utility prompts you when it is ready for you to insert the card.

4. Review the driver installation procedures provided for your operating system and network operating system.

   - For Windows 95 environments, see Chapter 3.
   - For Windows NT environments, see Chapter 4.
   - For Windows for Workgroups, see Chapter 5.
   - For Windows 3.1x, see Chapter 6.
   - For DOS, refer to Chapter 7.

Package Contents

- 3Com® Megahertz 10/100 LAN+56K Modem PC Card
- Network cable with a RJ-45 jack for connecting to 10BASE-T or 100BASE-TX twisted-pair segment, plus a 6-foot RJ-45 extension cable
- Modem connector with RJ-11 jacks for telephone line connection, plus a 6-foot RJ-11 telephone extension cable
- *3Com® Megahertz 10/100 LAN+56K Modem PC Card User Guide*
- *3Com® Megahertz 10/100 LAN+56K Modem PC Card Quick Start Guide*
- Two *Installation* diskettes
- Communications software, including speakerphone software

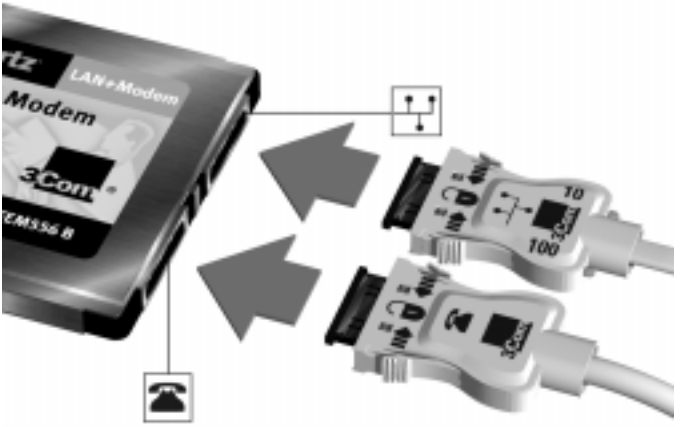
  This software is installed optionally during Setup.

If any of these items are missing, contact your network supplier immediately. For instructions on returning material to 3Com, refer to the Limited Warranty statement at the end of this guide.

Identifying the LAN+Modem Card Ports

The dual-function LAN+Modem card has a LAN port and modem port. Take care to connect each cable to the correct card port.

Figure 2 LAN and Modem Ports



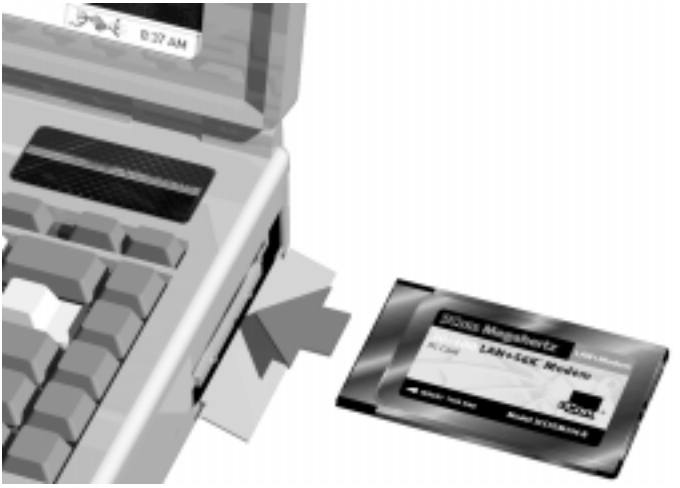
When attaching connectors to the LAN+Modem card, insert them with the icon side up. Be sure to attach the connector to the correct port. You cannot damage the card using the wrong port, but it will not operate if the cables are mismatched.

Inserting the LAN+Modem Card

These general instructions apply to most notebook computers. Refer to the manual that accompanied your computer for instructions specific to your computer.

To install the card, slide it into the PC Card slot, as shown in Figure 2-2. The power to the computer can be on or off. Without forcing the card, push until it seats firmly.

Figure 3 Inserting the LAN+Modem Card



CAUTION: Forcing the card into the slot may bend the pins inside the slot. If you don't know how to insert cards in your computer, refer to the documentation supplied with your computer on using PC Card (PCMCIA) slots.

Do not pull the cable to disconnect the connector from the card. This may damage the card and make it inoperable. Refer to the section "Disconnecting and Removing the LAN+Modem Card" on page 10 of this chapter.

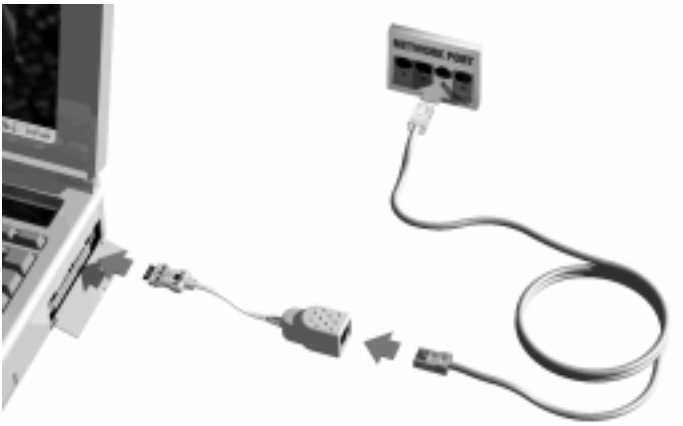
Some operating systems (such as Windows 95) or card and socket services applications detect the card as soon as you insert it, then immediately prompt for the information required to install your network drivers. Experienced users may install the card in this way. However, if you want to install the help, diagnostic, and support utilities provided for the LAN+Modem card, you must run Setup (see "Running Setup" in Chapter 3).

Connecting to a Network

1. Verify that you have the cable appropriate for the network cable at your site.
2. Attach the network connector at the end of the network cable to the LAN port (Figure 2) on the LAN+Modem card.
3. Connect one end of the RJ-45 extension cable to the network connector and the other end to the network segment (Figure 4).

   The LEDs on the network connector are described in Chapter 9. They will light when the network driver is installed and you are connected to the network.

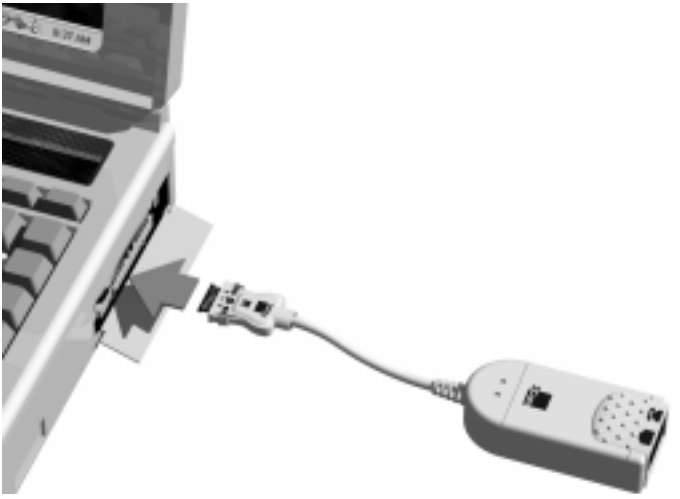
Figure 4 Connecting the Twisted-Pair Adapter



Connecting to a Telephone Line

1 Attach the modem adapter to the modem port on the LAN+Modem card. Refer to Figure 5.

Figure 5 Connecting the Modem Adapter to the Card



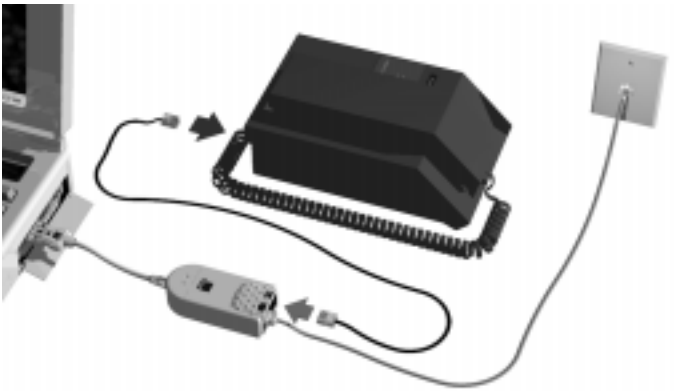
2 Connect the RJ-11 telephone extension cable (supplied with the LAN+Modem card) from the telephone outlet to the line port of the modem adapter, as shown in Figure 6.

The line port on the modem cable connector is labeled with an RJ-11 icon. Attach the connector with the icon facing up.

Figure 6 Connecting the Modem Adapter to the Telephone Line

3 To add a telephone set to the configuration, connect the cable from the telephone to the telephone port on the modem adapter, as shown in Figure 7. The telephone port on the modem adapter is labeled with a telephone icon.

Figure 7 Adding a Telephone to the Modem Configuration

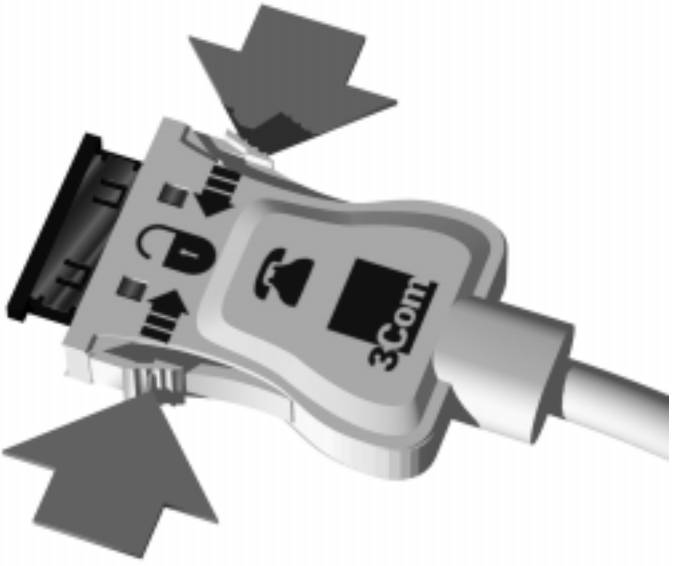


Disconnecting and Removing the LAN+Modem Card

Disconnecting the Cables

The LAN and modem cables are designed to lock in place when you connect them to the card. Figure 8 shows the location of the clips that unlock the connector so you can remove it.

Figure 8 LAN and Modem Cable Clips



To release the cable from the card, squeeze the clips located on the sides of the connector, as shown in Figure 9.

CAUTION: Do not pull the cable to disconnect the connector from the card. This may damage the card and make it inoperable.

Figure 9 Disconnecting Cables from the Card

Removing the LAN+Modem Card

To remove the card, reverse the installation procedure. On most systems, you do not have to power down the computer before removing the card. See "Hot Swapping," below.

Some card slots have buttons or levers for ejecting the card. Check your computer manual for information on removing cards. Store the card in its original or similar packaging.

Hot Swapping

If you are using the point enabler, you cannot hotswap the LAN+Modem card. If you are using Card and Socket Services or Windows 95, you can remove the LAN+Modem card without turning the computer off.

CAUTION: Do not remove the modem when a data transmission is taking place. Exit your communications application before removing the card.

3 INSTALLATION FOR WINDOWS 95

Before Running Setup

Before running Setup, close all other programs and read the README.TXT file on *Installation Disk 1*. This file contains the most recent information on the card and installation. You should also be aware of:

- What protocols your network uses
- The name of the server domain or workgroup to which you belong
- Your network account user name and password
- The name of the preferred server on your network, if applicable

You can obtain this information from your network administrator.

Network driver updates are available on 3Com's World Wide Web site at http://www.3com.com. The drivers are in the Support area. Locate the Support Welcome screen, Select Network Interface Cards, then select Software/Drivers. You can also obtain the latest drivers the 3Com Support BBS at 1-408-980-8204.

About Windows 95 Prompts

During setup, Windows 95 may prompt you for an *Installation Disk* or the Windows CD-ROM several times. Be sure that the path or device you supply to this prompt is correct. Here are some guidelines:

- If Windows 95 prompts for a disk from the manufacturer, put the requested *Installation Disk* in the floppy drive. On most systems, this will be drive A, so the path in the dialog box should point to A:\.
- If Windows 95 prompts for the Windows CD-ROM, put the Windows 95 CD-ROM in your CD drive. Often, this will be drive D. If so, the path in the dialog box should point to D:\WIN95.
- Some computers are delivered with Windows 95 installed, but no CD-ROM is supplied. If this is the case with your computer, you must supply the path where the Windows 95 software resides. Check your owner's manual for details. Often, this will be a subdirectory of your Windows folder. A common path for these driver files is C:\WINDOWS\OPTIONS\CABS, so you would supply this path in the dialog box.

If you encounter problems or error messages during Setup, click the Help button wherever it appears on a screen.

Running Setup

The Setup program:

- Detects which version of Windows 95 you are running and copies the correct diagnostics and uninstall files to your hard drive
- Updates system configuration files and allocates computer resources for optimal use with your LAN+Modem card
- Gives you the option of installing the communications software supplied with the LAN+Modem card
- Lets you register your LAN+Modem card on line

Use the following procedure to run Setup and install your LAN+Modem card. If you need help at any time while Setup is running, click Help.

Do not insert the LAN+Modem card until you're instructed to do so.

1 Insert *Installation Disk 1* into your computer's floppy drive.

2 Click *Start.*

3 Click *Run*.

4 Enter **a:\setup**

Follow the instructions as they appear on the screen. Setup prompts for a directory for installing the LAN+Modem card software. The default directory is C:\MHZ. If you specify a different directory, note the new name. You will need to supply it later during the Setup process.

5 When prompted, insert the LAN+Modem card into any available PC Card slot as described in Chapter 2.

Allow Windows 95 to detect and configure your card and its components.

6 Provide modem information if prompted: country, area code, and number to access an outside line.

7 Provide computer and workgroup names for your LAN setup if prompted.

8 After your network configuration is displayed, make sure that you have all necessary clients, protocols and services installed. Click *OK* and say "No" when asked to reboot

9 After the "Congratulations!" screen is displayed, reboot.

Before using the modem, make sure the communications software you plan to use is installed and that the cables are connected as described in Chapter 2.

Before you can use the network connection, you must properly configure the network settings (open the Control Panel and double-click Network). See your system administrator or network manuals for installation procedures.

10 After restarting your computer, run the PC Card Installation Test that appears on your screen. Besides testing modem functions, it registers the LAN+Modem card by using the modem to make a direct call to 3Com.

11 After your registration is complete, Setup displays the "Install Optional Software" screen. This screen lets you optionally install:

- Mobile Speakerphone Software (a sound card is required to use this feature)
- RapidComm Voice Communication Software (this software supports data, fax, and voice sending and receiving)
- RapidComm User Guide

  For each option, Setup lets you select Install, Continue, or Done.
- Select *Install* to install the software. Follow the installation prompts as they appear on the screen.
- Select *Continue* to proceed to the next option.
- Select *Done* to end and exit Setup.

Confirming Installation

For all versions of Windows 95, follow this procedure to confirm the network driver installation.

1 Double-click the *My Computer* icon.

2 Double-click the *Control Panel* icon.

3 Double-click the *System* icon.

The System Properties box appears, detailing your system setup.

4 Click the *Device Manager* tab.

A list of devices appears, arranged by type.

5 Double-click *Network Adapters*.

The LAN+Modem card name appears confirming successful installation:

```
3Com Megahertz 10-100 + 56K PC Card
```

6 Double-click this line to display a description of the card and its current status.

Confirm that the LAN+Modem card device status indicates: "This device is working properly."

7 Click the *Cancel* button to return to System Properties.

8 Double-click *Multifunction Adapters*.

It should display an entry for the 3Com Megahertz 10-100+56K PC Card.

9 Double-click the entry for the LAN+Modem card.

It should confirm "This device is working properly."

10 Click *Cancel*.

11 Double-click *Modems*.

It should display the entry for the 3Com Megahertz 10-100+56K PC Card.

12 Double-click the entry for the LAN+Modem card.

It should confirm "This device is working properly."

13 Click *Cancel*.

14 Click *OK* to exit System Properties.

Testing the Modem After Installation

1 Open the Control Panel and double-click Modems.

2 Select the Diagnostics tab.

3 Click on the COM port assigned to the 3Com Megahertz 10-100+56K PC Card.

4 Click *More Info...*

If the modem is working properly, the test will display a white box with a list of AT commands. This will confirm that the modem is functioning properly.

For Additional On-Line Information

The LAN+Modem card software includes utilities that provide additional information on installation and setup.

From the Start menu, select Program, then select the 3Com PC Card Diagnostics program group. The following utilities are available:

- LAN diagnostics, for information on networking with the LAN+Modem card
- Modem diagnostics, for information about modem status and operation
- Registration utility
- Optional software installation
- Help

For additional information on LAN setup and network driver installation for other network operating systems, run the DOS utility CONFIG. (The CONFIG help library is described in Chapter 9, "Diagnostics and Troubleshooting.")

Also, be sure to check your Installation Disks for README.TXT files containing the latest updates.

4 INSTALLATION FOR WINDOWS NT 4.0

This chapter describes how to install the LAN+Modem card under Windows NT 4.0. If you have problems installing the driver, make sure your version of NT is updated with the latest Microsoft service pack release (Service Pack 3 or greater).

Network driver updates are available on 3Com's World Wide Web site at http://www.3com.com. The drivers are in the Support area. Locate the Support Welcome screen, Select Network Interface Cards, then select Software/Drivers. You can also obtain the latest drivers the 3Com Support BBS at 1-408-980-8204.

Running Setup

The Setup program:

- Copies diagnostics files to your hard drive
- Lets you register your LAN+Modem card on line

Use the following procedure to run Setup and install your LAN+Modem card. If you need help at any time while Setup is running, click Help.

Before running Setup, insert the LAN+Modem card in the computer as described in Chapter 2, "Inserting and Connecting the Card."

1. Insert *Installation Disk 1* into your computer's floppy drive.
2. Click *Start*.
3. Click *Run*.
4. Enter **`a:\setup`**

Follow the instructions as they appear on the screen. Setup prompts for a directory for installing the LAN+Modem card software. The default directory is C:\MHZ. If you specify a different directory, note the new name. You will need to supply it later during the Setup process.

If you have questions about what appears on the screen, click *Help* for an explanation.

5 When Setup completes copying files to your hard disk, it displays a message about manual card setup.

6 Click *OK* to display a detailed Help Screen that will guide you through card setup.

7 Select My Computer/Control Panel/Devices and scroll down to the PCMCIA entry. Make sure its Status is *Started* and Startup is set for *Boot*.

Complete steps 8 through 13 of the following procedure to install the network function of the LAN+Modem card. (These steps assume that the network is running.) Complete steps 14 through 24 to install the modem function.

8 Open the Control Panel and double-click *Network*.

9 Open the Adapters tab and click *Add*.

Alternatively, if NT Networking is not installed, Windows NT prompts whether to install NT Networking.

If this is a first-time network installation, refer to information for first-time users on the Setup help screen.

10 Select *Have Disk*. Specify C:\MHZ or another path as chosen in Step 4.

11 Select *3Com Megahertz 10-100 + 56K PC Card* and click *OK*.

Wait while the files are copied . At the Network Settings prompt, set the following options:

- I/O Port Address (default is 300)
- Interrupt (default is 10)
- The modem and LAN functions of the card use the same interrupt. The)

- Memory Address (default is D0000)
- COM Port (default is COM2)

  This is the communications port used by the modem. Make sure the COM port is not being used by another device, such as a built-in infrared port.

12 Click *OK*, then click *CLOSE* to exit Network Setup.

13 Turn off the computer and remove the disk from drive A.

This completes the configuration of the network function of the card. The remaining steps configure the modem.

14 Insert the LAN+Modem card in the computer and attach the modem adapter and telephone cables as described in Chapter 2.

15 Turn on the computer and log on to Windows NT.

16 Double click *My Computer* and open the Control Panel.

17 Double click *Modems* to open the Install New Modem window.

18 Select *Don't detect my modem...* and click *Next*. A list of modem manufacturers and models will appear. If you have another modem already installed, click *Add*.

19 Select *Have Disk...*

20 When you are prompted for the manufacturer's installation disk, specify C:\MHZ or another path as chosen at Step 4 and click *OK*.

21 Select *3Com Megahertz 10-100 + 56K PC Card* (Modem Interface) and click *Next*.

22 Select a port for the modem and click Next. This port should match the COM port selected in Step 11. Be sure Selected ports is enabled.

23 At the Local Information prompt, enter the appropriate value for the requested fields and click *Next*.

24 Click *Finish* to complete the installation.

In order for you to log on to a Novell NetWare server, the Windows NT user's login name and the Novell NetWare login name must be exactly the same.

For Additional On-Line Information

The LAN+Modem card software includes utilities that provide additional information on installation and setup.

Open the C:\MHZ folder to locate the following utilities:

- LAN diagnostics, for information on networking with the LAN+Modem card
- Modem diagnostics, for information about modem status and operation.
- Registration utility
- Help

For additional information on LAN setup and network driver installation for other network operating systems, including Windows NT version 3.51, run CONFIG. (The CONFIG help library is described in Chapter 9, "Diagnostics and Troubleshooting.")

Also, be sure to check your Installation disks for README.TXT files containing the latest updates.

5 INSTALLATION FOR WINDOWS FOR WORKGROUPS

This chapter describes how to install the 3Com network driver under Windows for Workgroups.

Network driver updates are available on 3Com's World Wide Web site at http://www.3com.com. The drivers are in the Support area. Locate the Support Welcome screen, Select Network Interface Cards, then select Software/Drivers. You can also obtain the latest drivers the 3Com Support BBS at 1-408-980-8204.

Before Running Setup

Before running Setup, read the README.TXT file on *Installation Disk 1*. It contains the most recent information on your LAN+Modem card and installation. You should also be aware of:

- What protocols your network uses
- The name of the server domain or work group to which you belong
- Your network account user name and password
- The name of the preferred server on your network, if applicable

The latest versions of the Card and Socket Services must be installed on your machine. Check with your PC manufacturer if you are not sure.

If you installed any other network adapter or network driver in the PC, consult your MIS department for further instructions.

If you encounter problems or error messages during Setup, click the Help button wherever it appears on a screen.

Running Setup to Install Microsoft Network Clients

During the Setup procedure, you will be prompted to insert the LAN+Modem card into any PC Card slot in your notebook. If you need directions for inserting the card, refer to Chapter 2, "Inserting and Connecting the Card," in this *Guide*.

To install your LAN+Modem card under Windows:

1. Insert *Installation Disk 1* into your computer's floppy drive.
2. Click *File* from Program Manager.
3. Click *Run*.
4. Enter **a:\setup**
5. Follow the prompts as they appear. If you have questions about what appears on a screen, click *Help* and read the explanation that appears.

   Setup prompts for a directory for installing the LAN+Modem card software. The default directory is C:\MHZ. If you specify a different directory, note the new name. You will need to supply it later.
6. When the Network window appears during Setup, select the network driver that will give you access to your network.

   What driver you select depends on the kind of network you're running. Most users will load an ODI driver for Novell NetWare networks or an NDIS driver for Microsoft networks. Change the Primary Network Log on to your network type if you need to. Click *OK*.
7. Remove the *Installation Disk* and click *Yes* to restart your computer.

Before using the modem, make sure the communications software you plan to use is installed and that the cables are connected as described in Chapter 2.

Before you can use the network connection, you must install the network driver as described in the following sections. See your system administrator or network manuals for installation procedures.

8 After restarting your computer, run the PC Card Installation Test that appears on your screen. Besides testing modem functions, it registers the LAN+Modem card with 3Com.

9 Using the *Windows* menu, select *Network*.

10 From the Options menu, select *Change Network Settings*.

11 In the Network Setup dialog box, select the *Networks...* button.

12 Select *Install Microsoft Windows Network* and then click *OK*.

13 Select the *Drivers...* button.

14 In the Network Adapters dialog box, click *Add Adapter*.

A dialog box appears, listing the supported network adapters on the disk.

15 From the list of network adapters, select *Unlisted Or Updated Network Adapter*, and click *OK*.

16 Specify C:\MHZ or another path as chosen in step 5.

17 Select *3Com Megahertz 10-100 + 56K PC Card* and click *OK*.

18 Click *OK*.

19 In the Network Adapters dialog box, click *Close*.

20 In the Network Setup dialog box, click *OK*.

21 If prompted, supply the information you gathered before you began the installation. After you enter the information, click *OK*.

A message appears, prompting you to restart your PC.

22 Click *Continue* instead.

23 If you are not using Card Services and you have a memory manager (all PCs running Windows have a memory manager), you must exclude the CIS memory address range for the LAN+Modem card and other Card Services devices. (Refer to “Avoiding Memory Manager Conflicts” in Chapter 7 for details.)

For Additional On-Line Information

The LAN+Modem card is supplied with several software utilities that provide information for nonstandard installation and setup requirements.

- For information on the Setup utility, run SETUP and click the Help button on the Setup screen.
- For information about modem status and operation, run WINDIAG.
- For information on LAN setup and network driver installation for other network operating systems, run CONFIG. The CONFIG help library is described in "Accessing CONFIG Help Topics" in Chapter 9.

These utilities are available in the 3Com PC Card Utilities program group created by Setup.

Also, be sure to check your Installation Disks for README.TXT files containing the latest updates.

6 INSTALLATION FOR WINDOWS 3.1X

This chapter describes how to install the 3Com network driver under Windows 3.1x.

Network driver updates are available on 3Com's World Wide Web site at http://www.3com.com. The drivers are in the Support area. Locate the Support Welcome screen, Select Network Interface Cards, then select Software/Drivers. You can also obtain the latest drivers the 3Com Support BBS at 1-408-980-8204.

Before Running Setup

Before running Setup, read the README.TXT file on *Installation Disk 1*. It contains the most recent information on your LAN+Modem card and installation. You should also have the following information about your network account:

- What protocols your network uses
- The name of the server domain or workgroup to which you belong
- Your network account user name and password
- The name of the preferred server on your network, if applicable

The latest versions of the Card and Socket Services must be installed on your machine. Check with your PC manufacturer if you are not sure.

If you installed any other network adapter or network driver in the PC, consult your MIS department for further instructions.

If you encounter problems or error messages during Setup, click the Help button wherever it appears on a screen.

Running Setup

During the Setup procedure, you will be prompted to insert the LAN+Modem card and insert it into any PC Card slot in your notebook. If you need directions for inserting the card, refer to Chapter 2, "Inserting and Connecting the Card."

To install your LAN+Modem card under Windows:

1. Insert *Installation Disk 1* into your computer's floppy drive.
2. Click *File* from Program Manager.
3. Click *Run*.
4. Enter **a:\setup**
5. Follow the prompts as they appear. If you have questions about what appears on a screen, click *Help* and read the explanation that appears.

   Setup prompts for a directory for installing the LAN+Modem card software. The default directory is C:\MHZ. If you specify a different directory, note the new name. You will need to supply it later.
6. When the Network window appears during Setup, select the network driver that will give you access to your network.

   What driver you select depends on the kind of network you're running. Most users will load an ODI driver for Novell NetWare networks or an NDIS driver for Microsoft networks. Change the Primary Network Log on to your network type if you need to. Click *OK*.
7. Remove the *Installation Disk* and click *Yes* to restart your computer.

Before using the modem, make sure the communications software you plan to use is installed and the cables are connected as described in Chapter 2.

Before you can use the network connection, you must install the network driver as described in the following sections. See your system administrator or network manuals for installation procedures.

8 After restarting your computer, run the PC Card Installation Test that appears on your screen. Besides testing modem functions, it registers the LAN+Modem card with 3Com.

Running AutoLink to Install Novell Netware Clients

If you do not have a netware client already installed on your computer, the AutoLink™ program helps you install an ODI driver with a Netware client. If only one PC Card has been installed, you can use the AutoLink program to automatically install the NetWare ODI client software (including the driver), and to modify the CONFIG.SYS and AUTOEXEC.BAT files.

To use the AutoLink program, the PC must meet these requirements:

- Use Novell NetWare 3.12, 4.10, or 4.11 network operating system
- Have *only one* LAN+Modem card installed
- Be intended for use as a NetWare DOS ODI client

To use the AutoLink program, follow these steps:

1 Make sure the LAN+Modem card is installed and connected to the network, as described in Chapter 2.

2 Boot the PC under DOS.

3 Insert *Installation Disk 2* into drive A and type:

```
a:config [Enter]
```

4 Choose Auto Install and Config for NetWare (AutoLink) and Press [Enter]

5 Select AutoLink Windows 3.x or WFW 3.11.

Several messages appear while the AutoLink program is running. A final message indicates successful installation.

If problems occur only when the AutoLink program runs, view or print the AUTOLINK.LOG file (located in the C:\ directory) to see problems listed in the file.

- To display the file, type:
  `type autolink.log | more [Enter]`
- To print the file, type:
  `print autolink.log [Enter]`

6 As installation concludes, you are asked if you want to reboot the PC. For the installation to be effective, remove the *Installation Disk* and reboot the PC.

When prompted, type your user name and password.

For Additional On-Line Information

The LAN+Modem card is supplied with several software utilities that provide information for nonstandard installation and setup requirements.

- For information on the Setup utility, run SETUP and click the Help button on the Setup screen.
- For information about modem status and operation, run WINDIAG.
- For information on LAN setup and network driver installation for other network operating systems, run CONFIG. The CONFIG help library is described in "Accessing CONFIG Help Topics" in Chapter 9.

These utilities are available in the 3Com PC Card Utilities program group created by Setup.

Also, be sure to check your Installation Disks for README.TXT files containing the latest updates.

7 INSTALLATION FOR DOS

Installation Disk 2 contains the latest versions of the network drivers available when 3Com shipped the LAN+Modem card. It also contains diagnostic and configuration information concerning the LAN+Modem card under DOS and with a range of network operating systems.

Network driver updates are available on 3Com's World Wide Web site at http://www.3com.com. The drivers are in the Support area. Locate the Support Welcome screen, Select Network Interface Cards, then select Software/Drivers. You can also obtain the latest drivers the 3Com Support BBS at 1-408-980-8204.

You must run the CONFIG program to display or print network driver installation instructions. To start the CONFIG program, put *Installation Disk 2* in the floppy drive and run

```
a:\config.exe
```

About Point Enablers and Card Services

In DOS, Windows 3.x, and Windows for Workgroups environments, the LAN+Modem card is intended for computers that contain Card Services. If you are not running Card Services on your computer, the point enabler (FMENABLE.EXE) should operate normally, provided your computer has an Intel® (or Intel-compatible) PC Card controller. If Card Services is not installed, the point enabler might not work with other controllers.

In DOS environments, the point enabler (FMENABLE.EXE) must be loaded before you can use the card. Make sure FMENABLE.EXE is called in the AUTOEXEC.BAT file (if you are running NetWare) or CONFIG.SYS file (if you are running an NDIS network) before using the communications software to make a call or send a fax.

Card Services software, which is usually loaded on computers at the factory, is a software utility that coordinates card access to sockets and system resources, including device drivers, utilities, and application programs. To manage the computer's basic hardware configuration, Card Services automatically sets the I/O base address, interrupt request level, and the CIS memory base address for PC and PCMCIA cards.

Verify whether Card Services is installed on your computer by checking the boot screen or looking in the CONFIG.SYS file. For some versions of Card Services, the computer's boot screen may display the following line:

```
Card Services Installed
```

If Card Services is not displayed on the boot screen, check the device section of the CONFIG.SYS file. If Card Services is installed, one device statement will list Card Services, Card Serv, or CS on the device line and usually have a CS or SS in the driver name. Consult your Card Services documentation for more information.

If your computer does not have Card Services, or if you choose not to install Card Services, you must use the point enabler to run the LAN+Modem card. The point enabler will not support another PC Card in the same computer.

If you are having problems with Card Services or you want to disable it to save memory, you can reboot while pressing [F8]. This skips the startup process that loads Card Services.

Avoiding Memory Manager Conflicts

If you do not have Card Services, you may experience conflicts with the memory manager installed in your computer. You must configure the memory manager so that it does not interfere with the memory used by the LAN+Modem card.

The LAN+Modem card requires 4K for the CIS memory for normal operation (when you are running diagnostics, the PC Card needs 8K of memory).

The LAN+Modem card searches the upper memory, finds the 4K block that has been excluded, and uses this area for storing the contents of the CIS memory. For this reason, you do not need to exclude a specific range, as long as it is contiguous.

Follow these steps to exclude a sample 8 K memory range:

1 Make a backup copy of the CONFIG.SYS file.

2 Use a text editor to edit the CONFIG.SYS file on your computer.

3 Exclude the memory range that the LAN+Modem card is using.

For example, type this line in the CONFIG.SYS file:

device=c:\windows\emm386.exe NOEMS x=DE00-DFFF (8k)

where x stands for exclude, followed by an 8K contiguous block of memory. In this example, the memory setting is DE00–DFFF.

Refer to the manual that accompanied the memory manager software for additional instructions and information.

4 Save the CONFIG.SYS file and exit the text editor.

5 Reboot the computer.

Running the Point Enabler Under DOS

For NetWare networking environments, the point enabler should be installed in the AUTOEXEC.BAT file. Make sure that the point enabler program, FMENABLE.EXE, is listed before the ODI driver. The AUTOEXEC.BAT file should contain the line:

fmenable.exe

For NDIS networking environments, the point enabler should be installed in the CONFIG.SYS file. Make sure the that the point enabler program is listed before the NDIS driver. The CONFIG.SYS file should contain the line:

device=c:\nwclient\fmenable.exe

Alternatively, you can run the configuration manager manually from DOS each time you use the modem by typing:

fmenable [Enter]

Using Autolink to Install the Point Enabler

To install the point enabler with the *Autolink* program:

1. Insert *Installation Disk 2* into the floppy drive.
2. Run AUTOLINK.EXE. This will create a subdirectory called C:\NWCLIENT and copy all files and drivers needed to connect to the NetWare server.

Using the Modem Under DOS

If you want to use only the modem in DOS, add the following line to your AUTOEXEC.BAT file:

```
fmenable
```

When the computer boots, note the COM port allocated to the modem. If there is a COM-port conflict with another device, you can force a COM-port assignment with:

```
fmenable com=x
```

where x is the COM port you wish to use.

8 USING THE MODEM

Hints for Good Connections

Use the following information when you set up your communications software to help your modem connect at the highest possible speed:

- If you have call waiting, disable it. Call waiting generates a tone on the line that causes results similar to static. It also causes your modem to disconnect or report NO CARRIER if a call waiting signal comes when your modem is connected to another modem. Call waiting is usually disabled by using *70 in your dial string before the phone number for example:

  ATDT*70,14089808204

  Contact your phone company if you need more information.
- Telephone lines with static or noise slow down transmission and require error correction. If your phone line has a problem with noise, contact your telephone company to see if they can fix the problem.
- Don't use a splitter on your telephone line. A single connection from wall to modem produces the highest transfer speed.
- If the modems don't connect during the handshake:
  - Try disabling error correction (use the AT command AT&M0)
  - Try disabling data compression (AT&K0).
- If you continue having trouble communicating, select the maximum transmission speed of your modem (115,200 bps).

Setting Up Your Communications Software

Communications software is shipped with your modem, but virtually all data or fax communications software packages will work if set up correctly for your modem.

For this reason, you should read and follow the software installation and setup instructions supplied with your communications application.

Software Settings

Communications software setup requires information about the modem to make a call or send a fax using the modem. Enter the following settings with the modem software you are using:

- Select the highest transmission speed or baud rate listed, up to 115,200 bps
- Select fax Class 1
- Select NONE for parity
- Select a word length of 8
- Set the stop bits to 1
- Select RTS/CTS (hardware) flow control
- Select either a U.S. Robotics® High-Speed Sportster® or a U.S. Robotics Courier® Dual Standard.

If your communications software does not list either of these modems, select Megahertz CC3288i. Also, check the 3Com Megahertz World Wide Web site at www.mhz.com/intransit/support/ (select "Software and Drivers") for initialization strings for different communications applications. You can also obtain modem information from the 3Com Support BBS at 1-408-980-8204.

Setup for Communications Applications

Initialization Strings

If the LAN+Modem card is listed in your communications software, the correct initialization strings will be used. If the correct modem does not appear on the list, look in the \SCRIPTS directory on *Installation Disk 1* for support files for several widely used telecommunications applications.

Remember that you can generally use the factory- default initialization string for the modem. This default setting will work for most applications. If you need to reset your modem to the factory defaults, use the AT command string AT&F. For information on entering AT commands, see "AT Commands" on page 40.

Making a Call with HyperTerminal

HyperTerminal is the resident telecommunication application supplied with Windows 95 and Windows NT 4.0. This section shows you how to place a call to 3Com Corporation's BBS. Although 3Com Corporation does not charge for the connection, there may be toll charges associated with the phone call.

This procedure guides you through the steps to establish a modem connection using HyperTerminal with Windows 95 or Windows NT 4.0:

1. Close any open applications you are not using. Be especially sure to close any communication programs.
2. Click on Start/Programs/Accessories/HyperTerminal.
3. Double-click the HyperTerminal icon to open the New Connection window.
4. In the Connection Description dialog box, type 3Com BBS for the connection description and click *OK*.
5. In the Phone Number dialog box, type in 408 for the Area Code and 980-8204 for the Phone Number.
6. In the Connect Using menu, be sure that you have selected the 3Com Megahertz 10-100 + 56K PC Card. If it does not appear, your modem is not installed correctly.

7 Click *OK*.

8 When the Connect dialog box appears, choose the location and the dialing properties (for example, dial a 9 to access an outside line, dial a 1 before long distance, wait for a dial tone, and so forth) you require to make the call from your site and click *Dial*.

You may hear a brief handshaking as the modem tries to establish a connection. Next you should see, "Welcome to 3Com Corporation BBS." If so, the modem has established a connection and is working properly.

Making Calls from a Hotel or Business PBX

Normally, your LAN+Modem card waits for a dial tone before dialing. In some cases, however, a modem cannot detect a dial tone even when voice calls can be completed. This problem can occur when:

- Dialing into a standard telephone network using nonstandard dial tone conventions
- Placing a call from a country outside of the United States, where a different dial tone is used
- Dialing through a business or hotel PBX or a voice-mail system that indicates new mail with a unique dial tone (travelers often find that hotel PBXs have unique dial tones)
- Using telephones (such as cellular telephones) that require you to press a button before the dial tone can be heard

Try the following suggestions for restoring the standard dial tone:

- Clear your voice mail.
- Press the dial or line button on your telephone.
- Access an outside line before dialing.
- Reconfigure the dialing options for your communications package. Most packages have a *Wait for Dial Tone Before Dialing* option that you can enable or disable if your modem is having trouble detecting a dial tone. You must disable this option to permit blind dialing.

Advanced Modem Features

Automatic Credit Card Dialing

When you make a credit card call, your modem detects the audible signal that indicates when you should enter your credit card number. When it detects this sound, the modem automatically enters your credit card number and places the call.

To use this feature, enter a string such as:

ATDT <phone#>&<credit card#>

Call Duration Reporting

The modem records the length of your last call in hours, minutes, and seconds. You can use Call Duration Reporting to display and print a record of call activity after each call.

Call Progress Detection

An optional set of result codes lets you know when:

- The telephone number you have dialed is busy
- The line has been picked up, but a modem is not answering the call
- There is no dial tone on the telephone line
- A call is coming in

These result codes, and the commands that enable or disable these result codes are controlled by the ATXn command.

Redialing the Last Dialed Number

Your modem stores each dialed number until another number is dialed. When you enter ATDL, the modem redials the last number dialed.

Dialing Stored Phone Numbers

The modem can store up to four telephone numbers. For example, suppose you frequently call the number 555-5555. If this is the first number you want to store, enter AT&Z1=5555555 and ATDS1 to dial it. If it is the fourth number you want to store, you would type AT&Z4=5555555 to store it and ATDS4 to dial it.

Speakerphone Support

Speakerphone software can be installed automatically when you run Setup. This software lets you use your computer as you would a telephone. Your computer must be equipped with a sound card, a speaker, and a microphone (either built-in or external). A multimedia subsystem must also be installed. Speakerphone support means you can use your modem to dial a number, then use your computer's speaker and microphone for conversation.

To use the speakerphone functionality of your modem, click on the Speakerphone icon installed during Setup. Click Help if you have questions about Speakerphone software installation.

Telephone Answering Device (TAD) Support

Your modem, when used with communications software that supports this feature, allows you to send and receive personal voice mail. If you have a multimedia computer, you can send greetings and record voice messages as you would with a standard answering machine. You can also access your voice messages remotely.

Your software and modem can autodetect incoming fax, voice, or data calls and provide fax-on-demand services you can tailor to your needs.

The communications software shipped with your modem fully supports voice messaging. Refer to the communications software help files or manual for details about using this feature.

AT Commands

AT commands are set at the factory (factory settings are called *defaults*) to perform specific modem functions in preselected ways.

Use AT commands to display call status or send and receive data with communications software, such as Terminal (Windows 3.x) and HyperTerminal (Windows 95 and NT).

Entering AT Commands

AT commands are instructions typed at the command line of any communications application. A communications application is in command mode when the application is started but the modem has not yet dialed. When your application is in command mode, the AT commands you type are sent directly to the modem.

The most common way to enter AT commands is from terminal mode in your communications software. The basic rules for entering AT commands are:

- All AT command lines must begin with the prefix AT.
- Spaces between command characters (and option characters) are ignored.
- Command line parameters cannot exceed 255 characters.
- Use a carriage return [Enter] to enter a command line. Commands take effect as soon as they are received.
- Type commands in either upper or lower case, not a combination.
- If you leave the number off a command, zero is assumed. For example, if you type ATE, ATE0 is assumed.

The complete AT command set is described in the file ATCMDS.TXT in the Help directory on *Installation Disk 2*. You can also download the latest AT-command text file from the 3Com Support BBS at 1-408-980-8204 or copy it from the 3Com Megahertz World Wide Web site at www.mhz.com/intransit/support/.

S Register Values

The AT command settings are stored in the S Registers. S-Register values can be changed either by entering an AT command or by entering the new value of the S Register, preceded by AT, like this:

ATSn=v

where *n* is the number of the S Register you want to change and *v* is the new value of that S Register.

Suppose you want to change from manual answer (when you answer the call) to auto-answer (where the modem picks up the call after a certain number of rings), and have the call answered after three rings. Follow these steps:

1 Check the S Register table for the register that controls answering. The functions are listed in alphabetical order.

2 Enter your communications software.

3 Enter Terminal mode.

4 Type ATS=3 and press [Enter]. The modem will now answer a call after three rings.

The complete set of S-Register values is described in the file ATCMDS.TXT in the help directory on *Installation Disk 2*. You can also find them in the latest AT-command text file from the 3Com Support BBS at 1-408-980-8204 or from the AT-command file on the 3Com Megahertz World Wide Web site at www.mhz.com/intransit/support/.

Flash ROM

If issues arise with your modem, the firmware can be updated to correct problems without returning the card to 3Com. You can also use flash upgrades to install the latest firmware for your modem. For information on obtaining upgrades as they become available, check 3Com's World Wide Web site at http://www.3com.com and the 3Com Support BBS at 1-408-980-8204.

Sending and Receiving Faxes

To send or receive faxes using the modem, you must have a facsimile software package, such as the one supplied with your LAN+Modem card. In your fax communication software application, select error-correcting mode (ECM) to provide more reliable fax connectivity. Your modem supports Class 1 and Class 2.0 faxing; for best results and compatibility, we recommend using Class 1 as your fax class.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual.

Attaching this information to faxes is known as *fax branding*. Refer to your fax communication software documentation for details on how to comply with the fax-branding requirement.

For more information, refer to the documentation supplied with your fax software.

9 DIAGNOSTICS AND TROUBLESHOOTING

Monitoring the LAN LEDs

The status LEDs on the network connector are used for verifying the integrity of the link between the LAN+Modem card and the network hub (Figure 10, Table 1). The PC Card must be connected to the network (see Chapter 2) and the network driver must be installed (see Chapter 3).

Figure 10 Network Connector LEDS

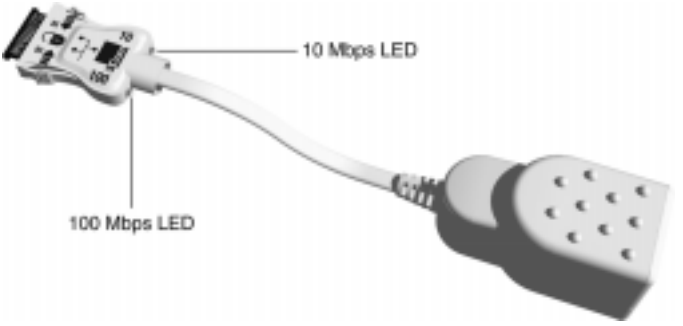


Table 1 LED Descriptions

LED	Description	Steady	Off
10 LNK	Green: Link integrity	Good 10BASE-T connection between PC Card and hub	No connection between card and hub. (Off when 100 LNK LED is on.)
100 LNK	Green: Link integrity	Good 100BASE-TX connection between PC Card and hub	No connection between card and hub. (Off when 10 LNK LED is on.)

Card Diagnostics Programs

Setup installs three diagnostic utilities:

- WNICDIAG.EXE. LAN diagnostics for Windows 95 and Windows NT.
- WINDIAG.EXE. Windows-based modem diagnostics for all Windows environments
- CONFIG.EXE. LAN diagnostics for DOS environments. Information files for all operating systems and network operating systems supported.

Windows LAN and Modem Diagnostics and other utilities are automatically installed by the Setup program. They are available from the 3Com PC Card Utilities program group.

Using WNICDIAG

The LAN Diagnostics utility for Windows 95 and NT 4.0 includes Self Test, Echo test, Card Properties viewer, Support information, and Problem Report generator.

1. Click the *Windows Start* menu.
2. Select *Programs*.
3. Select *3Com PC Card Utilities*.
4. Select *3Com PC Card Diagnostics*.
5. Use the tabs to display information about each of the *3Com PC Card Diagnostics* screens.

To open Help, click Help on any PC Card Diagnostics screen. To display information on any screen item, click the question mark on the window title bar and drag the icon to the item in question and click.

After running WNICDIAG, reboot your computer to resume normal card operation.

Using WINDIAG

WINDIAG is a modem diagnostics utility for Windows 95, Windows NT, and Windows 3.1x. It manages Card and Socket Services and the card enabler, performs hardware tests, provides utilities for editing system files, and gives you access to Help. To run WINDIAG:

1. Click the *Windows Start* menu.
2. Select *Programs*.
3. Select *3Com PC Card Utilities*.
4. Select *Modem Diagnostics*.

WINDIAG collects information about your system and creates a detailed log. It also includes a dial-up test.

Using CONFIG

Running DOS Diagnostic Tests

The CONFIG diagnostic tests are intended for experienced DOS users who are familiar with system configurations and PC card, NIC, and modem operation.

To run the diagnostic tests, you will have to start the computer without installing device drivers or memory managers.

This means bypassing the CONFIG.SYS and AUTOEXEC.BAT files when you boot your system. Use one of the following procedures:

- If you are running DOS 6.2 or later, press [F5] while booting the system.
- If you are using DOS 6.x in a plain DOS environment, hold down the right [Shift] key while booting the system.
- If you are using an older version of DOS, boot your system from a DOS diskette.

To run the diagnostics test:

1 Start CONFIG from *Installation Disk 2* by typing:

a:\config.exe

2 From the main menu, select *Configuration and Diagnostic Program* and press [Enter].

Follow the instructions provided on the Diagnostics screen. Press [F1] for a description of the available diagnostics.

Accessing CONFIG Help Topics

The CONFIG program includes a library of information on loading drivers and setting up a networking environment for your computer. This information is accessible from any DOS window. To start CONFIG, put *Installation Disk 2* in the disk drive and run **a:\config.exe**. If accessing Help only, you do *not* have to reboot under DOS as described on the previous page.

From the Main Menu, select a topic or family of topics and press [Enter]. For a brief description of a menu item, highlight it and press [F1]. Table 2 lists the topics available through the CONFIG main menu.

Table 2 CONFIG Information Library

Menu Item	Description
Installation Tips	■ For a list of topics covered under Installation Tips, refer to Table 3.
Microsoft Windows Information	■ General installation information for all Windows environments.
Auto Install and Config for NetWare	■ How to use AutoLink to install NetWare drivers under DOS
Driver Installation and Update	■ Information on Novell NetWare drivers. How to display the NDIS driver version and update drivers for DOS ODI. ■ NDIS driver installation and information. Setup for all Windows environments. ■ Software compatibility information: the current list of compatible software and hardware.

(continued)

Table 2 CONFIG Information Library (continued)

Menu Item	Description
Configuration and Diagnostic Program	■ Utilities for all Windows environments.
Release Notes	■ The latest information on the LAN+Modem card.

Table 3 lists the topics covered in the CONFIG Installation Tips menu. Select *Installation Tips (ReadMe) from the CONFIG main menu to see these topics.*

Table 3 CONFIG Installation Tips

Menu Item	Description
Disk Directory	■ Installation disk contents.
Windows	■ Windows 95. Installing NDIS3/NDIS4 drivers. ■ Windows NT. Installing Microsoft Windows networking. ■ Windows for Workgroups. Installing NDIS2 real mode driver, installing NetWare real mode driver.
NetWare	■ Installing driver for 16-bit DOS clients.
Banyan® VINES®	■ Installing client for Banyan VINES.
Artisoft® LANtastic®	■ Installing LANtastic 6.0 and 7.0 from DOS and Windows. ■ Installing LANtastic 7.0 for Windows 95.
DEC® Pathworks®	■ Installing NDIS driver for DEC Pathworks.
MS LAN Manager	■ Installing NDIS driver for LAN Manager versions 2.0, 2.1, 2.2.
Troubleshooting and Support	■ Software Compatibility Information. ■ Troubleshooting procedures. ■ Isolating card performance problems. ■ Technical Support information ■ Obtaining technical assistance. ■ CONFIG Program instructions ■ Changing the NIC configuration and running diagnostics software.

Setup Problems in Windows 95

Setup can configure your PC Card only if Card Services is functioning correctly and resources (I/O ports and IRQs) are available. When these two requirements are met, Setup can automatically determine a configuration for you.

Power Management

Microsoft's Windows 95 version B (also referred to as OSR 2) power management utility is not properly implemented for supporting multifunction PC cards. Power-management problems may occur when you restart your computer after installing the card. Since the LAN+Modem card's built-in power management feature manages power for the card, the Setup program automatically reconfigures power management. If you did not run the Setup program, watch for the following symptoms:

- The computer may not see the network.
- In the Control Panel/System/Device Manager list, a yellow exclamation point may appear next to the 3Com LAN+Modem card listing under Network Adapters, but the Multifunction Adapter and Modem functions will appear to be functioning correctly.
- The computer may stop responding.
- The computer may reboot in Safe Mode.
- Rebooting gets as far as the Windows logo screen then hangs.

If you are having any of these problems, you may have to disable the power management utility for PC Card modems using the following procedure:

1. Open the Control Panel application.
2. Double-click the Power icon.
3. Select the *PC-Card Modems* tab.
4. Clear the check box labeled *Turn off PC-Card modem when not in use* by removing the check symbol.
5. Click *OK* and Reboot.

COM Port Assignments

COM port problems may result from conflicting port assignments (a frequent problem on computers with preconfigured ports) or may be due to restrictions on what COM ports your communications application recognizes.

COM port problems may appear at startup or remain hidden until you attempt to use your communications application with the LAN+Modem card modem. Watch for the following symptoms:

- The LAN function appears to work normally, but the computer locks up when you try to use the modem.
- The system may show a valid COM port setting for the modem, but your application doesn't recognize it.
- In the Control Panel/System/Device Manager list, a yellow exclamation point may appear next to the 3Com LAN+Modem card listing Modems, but the Network Adapter and Multifunction Adapter listings appear to be functioning correctly.
- When booting, the system signals a problem with a descending tone or a low-level monotone.

If you are having any of these problems, try reassigning the COM ports. The most efficient way to change COM port assignments is to use the system or BIOS setup utility provided by your computer manufacturer. Typically, this setup utility is either an application that runs under the operating system or a program started by pressing a particular key or key sequence when booting. Refer to the owner's manual provided with your computer for details on using the setup tools provided with your computer.

To set COM ports for the LAN+Modem card:

1 Start your system or BIOS setup utility.

Refer to your computer owner's manual for directions on how to run your system or BIOS setup utility.

2 Set your computer's serial port to COM1.

If COM1 is not an option, assign the serial port to the address 3F8,4 (3F8 is the memory address for COM1. 4 is the Interrupt).

3 Set your computer's IRDA port (if any) to COM2.

If COM2 is not an option, assign the serial port to the address 2F8,3. (2F8 is the memory address for COM2; 3 is the Interrupt.)

4 Reboot.

PCMCIA Controller Verification

The Setup program automatically checks to see whether the Windows 95 PCMCIA controller is functioning properly. If you did not run the Setup program, check the Control Panel/System /Device Manager list to see whether a red X or a yellow exclamation point appears next to the PCMCIA Socket device category.

If a red X is present, double-click the device. Uncheck the box for Disable in the hardware profile and click *OK*.

If a yellow exclamation point is present, do one of the following:

1 Check the system resources to be sure there are no conflicts.

2 Check your laptop's user documentation for information on its controller.

If the PCMCIA Socket category is not present at all, run Control Panel/Add New Hardware so the system can detect the PCMCIA controller.

Removing and Reinstalling LAN+Modem Card

You may encounter unexpected problems while installing the LAN+Modem card. The factors that contribute to problem installations include:

- Manufacturer and model of your notebook computer.
- Manufacturer and model of your computer's CardBus, PC card, or PCMCIA controller chip.
- Version of operating system installed.
- Number and type of peripheral cards installed.

If your first attempt at installing the card is unsuccessful for any reason, your best course may be to remove the card and its software and repeat the installation procedures with a clean system.

When to Remove the Card Software

If the power management, COM port assignments, and PCMCIA controller settings are all correct, there may be problems from an earlier installation. You may note the following problems:

- One or both of the card functions is not working.
- The operating system does not detect the card.
- There is a warning tone at startup. (Refer to the documentation supplied with your notebook computer for information on start-up warning tones.)

If you are having any of these problems, uninstall the LAN+Modem card and software using the procedures below. Note that any LAN+Modem card-related files changed since the installation will be restored to their prior version.

1 Put *Installation Disk 1* in the floppy drive.

2 From the Start menu or File Manager, open the 3Com PC Card Utilities program group and run Uninstall.

3 If Uninstall is not available from the program group, you may have to run it from C:\MHZ (or the directory you specified for Setup). Type:

`c:\mhz\uninstal.exe [Enter]`

Reinstall the card using the first-time installation procedure given in Chapter 3.

If problems persist:

1 Reboot your computer in Safe Mode.

a Restart the computer.

b At the startup beep, press [F8].

c Select the Safe Mode option.

2 Open the Device Manager and confirm that the LAN+Modem card is not present under network adapter, modem, or multifunction card device categories.

If the LAN+Modem card is present under any of these categories, select it and click *Remove*.

Windows 95 Troubleshooting

Message or Symptom	Solution
Hardware Not Found	■ Windows does not recognize the PC Card. Reinstall the Card.
Using the Control Panel	■ Network Icon: Check the card settings. Change the COM port to COM3 and, if required, select an alternate IRQ. ■ Check whether you are using the correct driver. FEM556N3.SYS works with all versions of Windows 95, while FEM556N4.SYS works with Windows 95 B (OSR 2) only. ■ PC Card Icon: The PC Card icon should be able to see the LAN+Modem card in its slot. Select the modem and click *Properties*. Click *CardInfo*. If it displays "No database entry for this card", you may have the wrong driver. ■ Check card info device status. It should indicate that the card is working. ■ Click the *Driver* tab. You should see the driver listed. ■ Check whether the driver has been started (at this point, a message indicating that the software cannot configure the card does not necessarily indicate a problem).
Error: Windows 95 detected	■ Use the Windows 95 Wizard to set up PC Card support in order to have Windows 95 Plug and Play recognize the new Card. ■ Windows 95 PC Card help will start automatically to assist problem setups. ■ If PCMCIA support is already installed, insert the new PC Card and use Windows 95 Plug and Play to complete the installation.

Windows 98 Support

At the time of this release of the LAN+Modem card, Windows 98 was not available and is not currently supported.

As Windows 98 becomes available, check the 3Com World Wide Web site at http://www.3com.com for information on using the LAN+Modem card under Windows 98. You can also find updates for Windows 98 support on the 3Com Support BBS at 1-408-980-8204.

Windows NT Troubleshooting

Driver not loading correctly	■ Download the latest Service Pack from Microsoft (Service Pack 3 or newer).
Check the event log	■ From the Start menu, select: ■ Programs/Accessories/AdminTools/ EventViewer ■ Check the event log for errors. ■ The event log lists any problems found during system operation.
Modem won't install.	■ Check the version of Windows NT you are using. If it is version 3.5 or lower, you must upgrade to 3.51 or higher. Your machine's configuration could be interfering with the modem's setup. Follow these steps to see what resources are available: ■ Go into the Control Panel and check Ports to see what COM ports are defined. ■ Check Devices to make sure PCMCIA support is enabled. ■ The startup type should be "Boot" and the status should say "Started". ■ Check NT Diagnostics and take note of which IRQs (interrupts) and port addresses are available. Try IRQ 3 or IRQ 4 if IRQ 10 does not work.
Modem won't fax.	■ Most Windows fax software will not work with Windows NT. Contact Microsoft for information about software for sending faxes.
Windows NT Diagnostics	■ Open Windows NT Diagnostics. From Start menu, select Programs/Accessories/ Admin Tools/Windows NT Diagnostics. ■ Windows NT Diagnostics lets you see where the drivers are loading in I/O, IRQ, MEM ranges. ■ Check for conflicts. ■ Make sure the MEM range is valid.

Windows NT 5.0 Support

At the time of this release of the LAN+Modem card, Windows NT 5.0 was not available and is not currently supported.

As Windows NT 5.0 becomes available, check the 3Com World Wide Web site at http://www.3com.com for information on using the LAN+Modem card under Windows NT 5.0. You can also find updates for Windows 98 support on the 3Com Support BBS at 1-408-980-8204.

Windows 3.1x Troubleshooting

Message or Symptom	Solution
Conflict with modem configuration	■ Reinsert and reconfigure the modem. ■ Try one of these common configurations: COM Port IRQ Serial Port Address COM1 4 3F8 COM2 3 2F8 COM3 4 3E8 COM3 5 3E8 COM4 3 2E8
Could not find a PC Card to install	■ Verify that the card is installed correctly. ■ Try another slot.
Cannot configure the modem	■ Either the IRQ, I/O port, or memory address is not available.
Your computer accesses a different port each time you do a soft reboot, so the modem is often not found	■ Add the following statement to your CONFIG.SYS file before the C&SS driver statements device=c:\mhz\clrcom.exe *n* where *n* is the COM port assigned to the modem. If this file is not in your C:\MHZ directory, copy it from *Installation Disk 1*.
The modem side of the LAN+Modem card won't work using the NDIS3 install.	■ NDIS3 install is not supported for Windows for Workgroups with your LAN+Modem card (Windows for Workgroups). Use NDIS2.

LAN Problems with NDIS2 Drivers

Symptom	Solution
No adapter detected.	■ LAN+Modem is not in the PCMCIA slot, or is not being recognized by C&SS.
Card services could not allocate LAN IRQ.	■ The value specified for Interrupt in the *PROTOCOL.INI* file is not available. Try using another address. ■ Use File/Edit Configuration to check that the LAN IRQ does not conflict with any IRQs already in use. If so, change the IRQ setting (make the same change in *PROTOCOL.INI)*.
Card services could not allocate LAN I/O PORT base address. Bank select port failed to respond.	■ The I/O base-address value in the *PROTOCOL.INI* file is not available for use. Try another port address. Check that the base address setting in Card and Socket Services matches that in *PROTOCOL.INI*.
Enabler cannot activate the card.	■ Try to make more resources available (BIOS).
Enabler activates the card but it cannot see the server.	■ Try to force Enabler to use a different IRQ (possibly found by CONFIG), for example: FMENABLE IRQ=A Where A is the hexadecimal value of 10.
Enabler fails to find the card	■ Verify the EMM386.EXE settings in CONFIG.SYS.

LAN Problems With ODI Drivers

Symptom	Solution
Unable to configure the adapter.	■ Card is not installed or is in the wrong slot. Otherwise, it is not being recognized by C&SS or the enabler, or the enabler is not loaded.
After running VLM.EXE, "File Server Not Found".	■ Make sure the Ethernet frame type in NET.CFG is the same as in your network.
Machine displays "Using DOS ver x.xx" then hangs.	■ Try a different interrupt (IRQ) in the range of 3, 4, 5, 7 (sometimes), 9, 1, 11, 12, or 15.
The LSL is not loaded.	■ The LSL must be loaded in order for FEM556OD.COM (ODI) to work.
A TSR is loaded above the driver.	■ A Terminate-and-Stay-Resident file was loaded after FEM556OD.COM.
The Adapter did not initialize.	■ An expected resource is not, such as an I/O window at the PORT address in *NET.CFG*.
An invalid keyword was specified in *NET.CFG* on line x.	■ *NET.CFG* contains parameter entries known as Keywords, one of which was not recognized. Check Keywords in *NET.CFG.*
The Frame type specified in the NET.CFG file is not supported.	■ Legal frame types: FRAME ETHERNET_802.2, FRAME ETHERNET_802.3, FRAME ETHERNET_II, FRAME ETHERNET_SNAP.
Enabler cannot activate card	■ Try to make more resources available (BIOS)
Enabler activates the card but it cannot see the server.	■ Try to force Enabler to use a different IRQ (possibly found by CONFIG), for example: FMENABLE IRQ=A ■ Where A is the hexadecimal value of 10.
Enabler fails to find the card	■ Verify the EMM386.EXE exclusion setting in CONFIG.SYS.
Problems connecting to the server.	■ Make sure CONFIG.SYS supports enough logical drives for the network. Add the line LASTDRIVE=Z to CONFIG.SYS. ■ Check the NET.CFG settings.

Basic LAN Troubleshooting

Troubleshooting Guidelines

- Check the card installation by reviewing Chapter 2.
- Inspect all cables and connections.
- Make sure you are running the latest BIOS for your PC.
- Try a different LAN+Modem card in the same computer.
- Try the LAN+Modem card in another computer.

Also, if you removed the card or shut down your computer while diagnostics were running, you must remove and reinstall the card using the procedures described in "Removing and Reinstalling LAN+Modem Card" on page 52.

LAN Driver Placement in AUTOEXEC.BAT

Some computers start Windows upon startup. If the commands Setup added to your AUTOEXEC.BAT file do not run until you exit Windows, check the position of the commands in the AUTOEXEC.BAT file. You may have to move the WIN or WIN.COM command that starts Windows to the end of the file. Save the file and reboot your machine.

Forcing Full-Duplex Mode

The LAN+Modem card auto-selects full- or half-duplex operation. On NWay repeaters and switches using full-duplex transmission, it configures itself for full-duplex operation.

However, if you connect to non-NWay repeaters or switches with full-duplex support, you must use CONFIG to set the card for full-duplex operation.

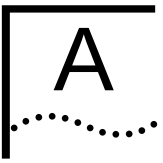
1. Run CONFIG.
2. From the Main Menu, select Configuration and Diagnostics Program.
3. Select Configure NIC.
4. Select Full Duplex.
5. Select Forced Full Duplex.

Basic Modem Troubleshooting

Symptom	Solution
COM Port Conflict (Modem on Com3 03E8, IRQ 3)	■ Indicates a conflict between two drivers claiming the same IRQs. Change one of the IRQs.
Can't hear modem or speaker	■ Make sure your computer's speaker is turned on (ATM1). ■ Turn your speaker volume on (ATL3).
ERROR Message	■ Make sure you selected the correct COM port in your software. ■ If you are typing from the command line in terminal mode, retype the command. ■ Make sure you are issuing the correct command.
Modem doesn't dial correctly	■ Make sure you have entered the telephone number correctly if you are using the dialing directory. ■ Make sure the number you dialed is correct if you are dialing it in terminal mode. ■ Be sure you placed a 1 before your number when dialing long distance. ■ If you are required to dial a prefix such as 9, make sure you dialed it first. ■ The other line could be busy or not answering. Make sure it is available to answer before calling. ■ If you are dialing internationally, your modem may not recognize the dial tone. Try the command ATX3DT and the telephone number.
Modem not responding	■ Check your computer's BIOS setup. If it requires certain settings for modems, be sure they have been turned on. ■ Make sure you have selected the correct COM port in your software setup. ■ Make sure the modem has been connected completely. Check all your connections and make sure they are all secure. ■ Make sure the IRQ the modem is using is the same as the IRQ the communications software package is using relative to the COM port in question. ■ If you are running Windows, make sure that the IRQ the modem is using is the same as the IRQ as Windows.

Symptom	Solution
Modem won't dial	■ Check your phone line and cable connections. See Chapter 2. ■ Make sure no other phone extension has been picked up on the same line. ■ Make sure you are using a standard analog telephone line. You might receive an error if you are trying to connect to a digital phone system or PBX. ■ Listen for a normal dial tone on the line. If the dial tone sounds different than normal, find another line.
Modem won't fax	■ Make sure you have selected the correct fax class. ■ Make sure that you do not have another communications program open. ■ Be sure you selected the correct printer driver in your word processing program. ■ Turn off all power management.
Modem not listed in software	■ If you do not have a 3Com modem listed, refer to "Setting Up Your Communications Software" in Chapter 8.
Modem won't connect	■ Make sure the parity, modem speed, word length, and stop bits are set up according to specifications. ■ Try removing all of the error correction and data compression.
Modem communication error or modem not found	■ DOS users should ensure that the correct modem enablers are loading in the CONFIG.SYS or AUTOEXEC.BAT file. ■ Make sure you have inserted or installed the modem completely. ■ Check your computer's BIOS setup. If it requires certain settings for modems, be sure they have been turned on. ■ Make sure you have selected the correct COM port in your software setup. ■ Check all the cable connections and make sure they are secure. ■ If you are using fax software, make sure you have selected the correct fax class.

Symptom	Solution
NO DIAL TONE Message	■ Check all the cable connections and make sure they are secure. The connection to the phone line could be incomplete, or the phone cable could be bad. ■ Make sure the telephone line you are using is not in use by someone else. ■ Check to make sure you are using a standard analog telephone line. If you are trying to connect to a digital phone system or a PBX, you may receive an error message. ■ Make sure the phone line is in working order by connecting a standard telephone and listening for a dial tone.
DIGITAL LINE ERROR Message	■ You are trying to connect to a digital phone system or a PBX. Change lines to connect to a standard analog telephone line.
Modem clicks repeatedly, but no connection is made	■ You are trying to connect to a digital phone system or a PBX. Change lines to connect to a standard analog telephone line. Ordinarily, you would get a DIGITAL LINE ERROR message, but if the current is under 100mA, the modem will click repeatedly but the message will not appear ■ The cable may not be seated securely. Check both cable connections to the modem and to the phone jack or cellular phone.
Modem will not work with IBM notebooks.	■ If you are using an IBM Thinkpad 755CSE or other IBM computer that has an internal modem, you must disable the modem in order to use your LAN+Modem card: 1 Load Windows. 2 Open the IBM Thinkpad Setup Group. 3 Open the DSP Icon. 4 Uncheck Telephony Function. 5 Save. 6 Reboot the computer.



SPECIFICATIONS

Table 4 Specifications

Network Interface	
3CCFEM556 PC Card	Ethernet IEEE 802.3 10BASE-T and 100BASE-TX industry standards
Physical Dimensions	
Length	3.370 in (85.6 mm)
Height	Type II, 0.197 in (5.0 mm)
Width	2.126 in (54 mm)
Weight	0.86 oz (24.4 g)
Environmental Operating Range	
Operating temperature	0 to 55°C (32 to 131°F)
Relative humidity	5 to 90% noncondensing
Card Information Structure (CIS) Memory Size	
CIS: 256 bytes	
Network Cable Specifications	
Category 3 LAN and high-speed data cable (10 Mbps) that meets the requirements of EIA/TIA-568 and EIA/TIA TSB-36 (for example, Anixter® CM-00424BAG-3 or equivalent)	
Category 4 extended distance LAN cable (16 Mbps) that meets the requirements of EIA/TIA-568 and EIA/TIA TSB-36 (for example, Anixter CM-00424BAG-4 or equivalent)	
Category 5 voice and data transmission LAN cable (100 Mbps) that meets the requirements of EIA/TIA-568 and EIA/TIA TSB-36 (i.e., AT&T® type 1061 or equivalent)	
Power Requirements	
Operating voltage	+5 V ± 5% @ 500 mA (max)

Table 4 Specifications (continued)

Power consumption (active mode)	
10BASE-T LAN	197mA
100BASE-TX LAN	277mA
Modem	379mA
10BASE-T and Modem	446mA
100BASE-TX and Modem	500mA
Certification	
FCC	Part 15, Class B & Part 68
x2 protocol support	
CCITT recommendations supported:	
V.90.	
V.34 1996. Full-duplex asynchronous at 33,600, 31,200, 28,800, 26,400, 24,000, 21,600, 19,200, 12,000, 9600, 7200, 4800, or 2400 bps with or without MNP.	
V.42. Error correction.	
V.42*bis.* Data compression over analog phone lines.	
V.32*bis.* Full-duplex asynchronous at 14,400, 12,000, 9600, 7200, or 4800 bps with or without MNP. V.42 and V.42*bis* full-duplex synchronous.	
V.32. Full-duplex asynchronous at 9600 or 4800 bps with or without MNP. V.42 and V.42*bis* full-duplex synchronous.	
V.29. Half-duplex synchronous at 9600, 7200, or 4800 bps for facsimile transmission and reception.	
V.27*ter.* Half-duplex synchronous at 4800 or 2400 bps for facsimile transmission and reception.	
V.23. Full-duplex asynchronous at 1200 or 600 bps in forward channel and 75 bps in reverse channel.	
V.22*bis.* Full-duplex asynchronous at 2400 bps with or without MNP. V.42 and V.42*bis* full-duplex synchronous.	
V.22. Full-duplex asynchronous at 1200 or 600 bps with or without MNP. V.42 and V.42*bis* full-duplex synchronous.	
V.21. Full-duplex asynchronous at 300 bps for data or facsimile transmission and reception with or without MNP.	
MNP10. Error correction for cellular communications.	

B TECHNICAL SUPPORT

The following support information is correct as of this publication. For the latest information, refer to 3Com's World Wide Web site as described below.

On-line Technical Services

3Com offers world-wide product support 24 hours a day, 7 days a week, through the following:

- 3Com World Wide Web site
- 3Com FTP site
- 3Com Bulletin Board Service (3Com BBS)
- 3ComFacts℠ automated fax service

World Wide Web Site

Access the latest networking information from the 3Com World Wide Web site at http://www.3com.com.

This site offers support information such as technical documentation, software, and other support options ranging from technical education to maintenance and professional services.

3Com FTP Site

You can download drivers, patches, and software from the 3Com public FTP site using the Internet. Your FTP client will require the following information:

- Hostname: **`ftp.3com.com`** *or* **`192.156.136.12`**
- Username: **`anonymous`**
- Password: **`<your Internet e-mail address>`**

You do not need a user name and password if you are using a Web browser such as Netscape Navigator or Internet Explorer.

3Com Bulletin Board Service

The 3Com BBS contains patches, software, and drivers for 3Com products. This service is available through analog or digital (ISDN) modems.

For analog lines, set your modem to 8 data bits, no parity, and 1 stop bit. Dial the most convenient number from the following table:

Country	Data Rate	Telephone
Australia	Up to 14,400 bps	61 2 9955 2073
Brazil	Up to 14,400 bps	55 11 5181 9666
France	Up to 14,400 bps	33 1 6986 6954
Germany	Up to 28,800 bps	4989 62732 188
Hong Kong	Up to 14,400 bps	852 2537 5601
Italy	Up to 14,400 bps	39 2 27300680
Japan	Up to 14,400 bps	81 3 3345 7266
Mexico	Up to 28,800 bps	52 5 520 7835
P.R. of China	Up to 14,400 bps	86 10 684 92351
Taiwan, R.O.C.	Up to 14,400 bps	886 2 377 5840
U.K.	Up to 28,800 bps	44 1442 438278
U.S.A.	Up to 28,800 bps	1 408 980 8204

For ISDN lines using a digital modem, dial 1 408 654 2703.

3ComFacts Automated Fax Service

The 3ComFacts automated fax service provides technical articles, diagrams, and troubleshooting instructions. Use a touch-tone telephone and call 1 408 727 7021.

Support from Your Network Supplier

Many network suppliers are authorized 3Com service partners and provide network planning, installation, hardware maintenance, application training, and other support services.

When you contact your network supplier for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to obtain assistance from the 3Com on-line technical resources or from your network supplier, 3Com offers technical telephone support services. To find out more about your support options, please call the 3Com technical telephone support phone number at the location nearest you.

When you contact 3Com for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

Below is a list of worldwide technical telephone support numbers:

Country	Telephone Number
Asia Pacific Rim	
Australia	1 800 678 515
Hong Kong	800 933 486
India	61 2 9937 5085
Indonesia	001 800 61 009
Japan	0031 61 6439
Malaysia	1800 801 777
New Zealand	0800 446 398
Pakistan	61 2 9937 5085
Philippines	1235 61 266 2602
P.R. of China	10800 61 00137 or 021 6350 1590
Singapore	800 6161 463
S. Korea	82 2 3455 6455
From Seoul:	00798 611 2230
Taiwan, R.O.C.	0080 611 261
Thailand	001 800 611 2000
Europe	
From anywhere in Europe, call:	+31 (0)30 6029900 phone +31 (0)30 6029999 fax
From the following countries, you may use the toll-free numbers:	
Austria	06 607468
Belgium	0800 71429
Denmark	800 17309
Finland	0800 113153
France	0800 917959
Germany	0130 821502
Hungary	00800 12813
Ireland	1 800 553117
Israel	177 3103794
Italy	1678 79489
Netherlands	0800 0227788
Norway	800 11376
Poland	0800 3111206
Portugal	05 05313416
South Africa	0800 995014
Spain	900 983125
Sweden	020 795482
Switzerland	0800 55 3072
U.K.	0800 966197
Latin America	
Argentina	541 312 3266
Brazil	55 11 523 5153
Colombia	571 629 4847
Mexico	01 800 849 2273
North America	1 800 NET 3Com (1 800 638 3266)

Returning Products for Repair

Before returning a product to 3Com for repair, obtain a Return Materials Authorization (RMA) number. Products received without RMA numbers will be returned unopened at the sender's expense.

To obtain an RMA number, call or fax:

Country	Telephone Number	Fax Number
Asia, Pacific Rim	65 543 6342	65 543 6348
Europe, South Africa, and Middle East	011 44 1442 435860	011 44 1442 435718
From the following European countries, you may call the toll-free numbers; select option 2 and then option 2:		
Austria	06 607468	
Belgium	0800 71429	
Denmark	800 17309	
Finland	0800 113153	
France	0800 917959	
Germany	0130 821502	
Hungary	00800 12813	
Ireland	1800553117	
Israel	177 3103794	
Italy	1678 79489	
Netherlands	0800 0227788	
Norway	800 11376	
Poland	00800 3111206	
Portugal	05 05313416	
South Africa	0800 995014	
Spain	900 983125	
Sweden	020 795482	
Switzerland	0800 55 3072	
U.K.	0800 966197	
Latin America	1 408 326 2927	1 408 764 6883
U.S.A. and Canada	1 800 876 3266, option 2	1 408 764 7120

3Com Corporation LIMITED WARRANTY

HARDWARE

3Com warrants its hardware products to be free from defects in workmanship and materials, under normal use and service, for the following lengths of time from the date of purchase from 3Com or its Authorized Reseller:

Network interface cards	Lifetime
Other hardware products (unless otherwise specified in the warranty statement above)	1 year
Spare parts and spares kits	90 days

If a product does not operate as warranted above during the applicable warranty period, 3Com shall, at its option and expense, repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

3Com shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to 3Com for repair, whether under warranty or not.

SOFTWARE

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FCC CLASS B CERTIFICATION STATEMENT

3Com Corporation
Model No: 3CCFEM556B
Made in U.S.A.

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.

WARNING: 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, and the Canadian Department of Communications Equipment Standards entitled, "Digital Apparatus," ICES-003.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 the one which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.

NOTE: In order to maintain compliance with the limits of a Class B digital device, 3Com requires that you use quality interface cables when connecting to this device. Changes or modifications not expressly approved by 3Com could void the user's authority to operate this equipment. Refer to the manual for specifications on cabling types.

FCC Declaration of Conformity

We declare under our sole responsibility that the

Model:	Description:
3CCFEM556B	10/100 LAN + 56K Modem PC Card

to which this declaration relates, is in conformity with the following standards or other normative documents:

- ANSI C63.4-1992 Methods of Measurement
- Federal Communications Commission 47 CFR Part 15, subpart B

  15.107 (e) Class B Conducted Limits
  15.109 (g) Class B Radiated Emissions Limits

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