

EtherLink[®] III Parallel Tasking[™] 16/32-Bit Micro Channel[®] Adapters Guide

Members of the 3Com EtherLink III family of adapters

**For 3Com User Group Information
1-800-NET-3Com
or your local 3Com office**

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3Com Corporation
Model Nos: 3C529 and 3C529-TP
FCC ID: DF67CC3C529
FCC ID: DF67CC3C529-TP
Made in the 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.

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Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

We hereby certify that the 3C529, 3C529-TP comply with the RFI Suppression Requirements of Vfg 1046/1984. The German Postal Service was notified that the equipment is being marketed. The German Postal Service has the right to re-test the equipment and to verify that it complies.

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Introduction

The 3Com® EtherLink® III Parallel Tasking™ 16/32-bit Micro Channel® Coax Adapter (3C529) and the Parallel Tasking 16/32-bit Micro Channel 10BASE-T Adapter (3C529-TP) are 32-bit self-configuring adapter boards. They can be installed in:

- A 16- or 32-bit slot in any IBM® Personal System/2® (PS/2®) computer that has a Micro Channel architecture bus
- Any compatible UL®-listed personal computer that includes instructions detailing the installation of hardware and software options inside the main system unit

These adapters connect your computer to an Ethernet network wired with IEEE 802 standard 10BASE-2 or 10BASE-5 coaxial cable, or 10BASE-T twisted-pair cable.

This manual provides installation and diagnostic instructions for the 3C529 (coax) and 3C529-TP (twisted-pair) adapters. The two adapters are functionally identical; they differ only in the layout of the components on each board, the backplates, and the network connector. The name 3C529 is used in this manual to refer to both adapters unless otherwise specified.

Lifetime Warranty

**3Com's EtherLink[®],
TokenLink[®] III 16/4,
and FDDILink[™] adapters
have a Lifetime Warranty.**

To ensure the very best 3Com service and support, take the time to complete the product registration card.

Any defective 3Com adapter will be repaired or replaced, at 3Com's option, for as long as the adapter resides in its original IBM[®] Personal Computer, Personal System/2[®], or compatible computer (driver software is covered by the standard 90-day limited software warranty).

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3436 ZZ Nieuwegein
The Netherlands

Quick Start

This section is for experienced network users who are installing a single 3C529 adapter into the computer in which it will operate.

For detailed information, definitions, figures, and tables, refer to the appropriate chapter or appendix.

Unpacking the Adapter



CAUTION: *The adapter is packed in an antistatic bag to protect it during shipment. To avoid damaging any highly static-sensitive components on the adapter or the computer, be sure to reduce any static electricity on your person. One way to do that is to touch the metal chassis of your computer. You can maintain grounding by wearing a wrist strap attached to the chassis.*

- 1. Carefully lift the adapter out of the box and set it aside.**
- 2. Return all packing materials to the shipping container and store the container in a safe place.**

If you need to return the adapter to 3Com, you must pack it in the original (or equivalent) packing material, or the warranty will be voided.

- 3. Remove the adapter from its antistatic bag.**

4. Check the adapter for any visible signs of damage.

If you find a problem, immediately notify your network supplier and the carrier that delivered the adapter.

5. Place the adapter back in its antistatic bag until you are ready to install it.



NOTE: Fill out the Product Registration Card at the back of this manual and return it to 3Com. Or call 1-800-NET-3Com for immediate registration.

Installing the Adapter



WARNING: The adapter board will be installed in a computer which operates with voltages that can be lethal. Before you remove the cover of your computer, you must observe the following steps to protect yourself and prevent damage to the system's components.

- 1. Turn off the computer and unplug the unit from its power source.**
- 2. Disconnect all cables that are connected to the main system unit.**
- 3. Remove any jewelry from your hands and wrists.**
- 4. Use only insulated or nonconductive tools.**
- 5. Remove the computer's cover and choose an expansion slot (see Figure 1-1).**

6. Remove the expansion slot's backplate (see Figure 1-2).

You can install the 3C529 adapter in any 16- or 32-bit expansion slot.

7. Install the optional boot PROM.

If you are installing the boot PROM on the adapter, refer to the installation instructions that accompanied the boot PROM.

8. Insert the 3C529 adapter into the 16- or 32-bit expansion slot and secure it with the screw (see Figure 1-3).

9. Replace the computer's cover.

10. Reconnect all devices and cables except the network cable.

Configuring Your Computer

After you install the 3C529 adapter, you must configure the computer.

When the computer starts, the following error message appears:

00165-Adapter Configuration Error

The error occurs because the adapter is not in the computer's current configuration. To configure your computer:

1. Make a backup copy of the PS/2 Reference Diskette.



***NOTE:** If you are using a Micro Channel computer that is not manufactured by IBM, use the corresponding reference diskette that comes with your computer. The procedures below may vary on other reference diskettes.*

- a. Insert the PS/2 Reference Diskette.
 - b. Reboot the computer.
 - c. At the main menu select Backup/Restore System Programs.
 - d. Select Backup the Reference Diskette.
Follow the instructions on the screen to make the backup of the reference diskette.
- 2. With the backup copy of the PS/2 Reference Diskette still in drive A, press [Ctrl]+[Alt]+[Del] to reboot.**
- 3. When the main menu appears, select Set Configuration and press [Enter].**

4. Select Run Automatic Configuration and press [Enter].

The automatic configuration method assumes you are using the on-board transceiver and that the 3C529 Adapter Description File (ADF) is already installed on the *PS/2 Reference Diskette*. If this is not the case, proceed to step 5.



NOTE: *The ADF contains the defined set of configuration options for the adapter that will allow it to function in the computer.*

- a. When the automatic configuration is complete, exit the program and remove the copy of the *PS/2 Reference Diskette*.
- b. Reboot your computer under DOS.
- c. Go to the Quick Start section, “Changing 3C529 Adapter Options” if you need to change software settings.

5. If the ADF is not on the *PS/2 Reference Diskette* or if you have an external transceiver, do not configure your computer automatically.

Continue to the next section to change the computer's configuration.

Verifying or Changing the Computer's Configuration

To verify your computer's configuration, select View Configuration from the main menu on the *PS/2 Reference Diskette*. The computer's configuration is displayed.

To change your computer's configuration, follow these steps:

1. Select Set Configuration from the main menu.

The Set Configuration menu is displayed.

2. Select Change Configuration.

The program displays the computer's configuration, which includes the settings for the adapter and the slot it is installed in. Confirm that these are the configuration settings you want. If you need help, press [F1]. If you want to change the configuration settings, use the arrow keys to select a setting and press [F5] or [F6] to scroll through a list of the available choices.



***NOTE:** If you are using an external transceiver, be sure to set Transceiver Type to external.*

3. To save your settings press [F10]. Then press [Enter].

4. Press [F3] to return to the Set Configuration menu.

5. Press [F3] again to exit the program.

6. Remove the copy of the *PS/2 Reference Diskette*.

7. Press [Enter] to reboot your computer under DOS.

If you need to change the software settings for the adapter, proceed to the section "Changing 3C529 Adapter Options." Otherwise, go to the section "Connecting to the Network."

Changing 3C529 Adapter Options

This procedure is only required if you want to change the Network Driver Optimization or Maximum Modem Speed settings. If you do not want to change these settings and you accept their default values, go to the section “Connecting to the Network.” To configure the 3C529 adapter, follow these steps:

- 1. Make sure that you have booted the computer under DOS.**
- 2. Place the *EtherDisk*® diskette in the floppy drive on your computer and make that drive the current drive.**
- 3. Type at the prompt:**
INSTALL [Enter]
- 4. The first time you use the diskette to install an adapter, a license screen appears. To accept the terms and conditions of the 3Com end-user software license agreement, type the following:**
Y



NOTE: To view the full text of the license agreement, press [F1].

- 5. Read the screen and press [Enter].**
- 6. When the main menu screen appears, select Configuration/Diagnostic/Troubleshooting and press [Enter].**

7. When the Configuration and Diagnostic screen appears, select Configuration and Diagnostic Program.
8. Under the Install pull-down menu, Configure Adapter appears already highlighted. Press [Enter].
9. Use the arrow keys to highlight one of the options on the screen that appears. Press [Enter].
10. Use the arrow keys to scroll through the list of settings for that option. Select a setting and press [Enter] for each option that you want to change.
11. Press [Tab] to highlight <OK>. Press [Enter].
12. When the adapter is configured successfully, proceed to “Connecting to the Network.”

Connecting to the Network

Connect the following types of network cables to the EtherLink III adapters.

| Cable Type | Software Setting | Connector |
|---------------|-----------------------|--------------|
| Thin coaxial | On-board transceiver* | BNC |
| Twisted-pair | On-board transceiver† | RJ-45 |
| Thick coaxial | External transceiver | AUI (15-pin) |

* Default setting for the 3C529 adapter.

† Default setting for the 3C529-TP adapter.



NOTE: To connect to the network, the computer must be turned off.

Figure 4-1 shows the backplates of the adapters.

Installing the Network Drivers

AutoLink Auto Installation of the 3C529 Adapter Drivers for a NetWare® Networking Operating System (NOS)

Follow these steps to install the Novell® NetWare network drivers automatically if your network environment meets the NOS requirements described in Chapter 5.

1. **Make sure that you have installed and configured the adapter, and booted the computer under DOS, and have connected your computer to the network.**
2. **If the *EtherDisk* diskette is already in your floppy drive, go directly to step 7. Otherwise, insert the *EtherDisk* diskette in a floppy drive on your computer.**
3. **Make that drive the current drive.**
4. **Type at the prompt:**
INSTALL [Enter]
5. **The first time you use the diskette to install an adapter, a license screen appears. To accept the terms and conditions of the 3Com end-user software license agreement, type the following:**
Y
6. **Read the screen and press [Enter].**
7. **When the main menu screen appears, select NetWare DOS ODI Client and press [Enter].**



NOTE: *AutoLink auto installation with configuration will take several minutes.*

8. Reboot the computer when the auto installation process is finished.



NOTE: To ensure that your computer is configured with the latest client software, ask your system administrator to configure a 3Install account on the server.

Instructions for configuring a 3Install account are contained in the README.TXT file located in the \QINSTALL\SERVER directory on the EtherDisk diskette.



NOTE: The NetWare 4.x server driver for NetWare 3.11 requires that you load the 3C5X9.LAN driver along with the following NLMs (NetWare Loadable Modules).

- LSLENH.NLM
- PATCHMAN.NLM
- MSM31X.NLM
- ETHERTSM.NLM

All of the files are located on the EtherDisk diskette.

These files must all be copied to the same subdirectory. If you are not loading them from the SYSTEM volume, you must supply the DRIVEID:\PATH to the location of the files.

Type in the following commands in the order shown (X: can be any drive). LSLENH.NLM loads itself plus PATCHMAN.NLM. 3C5X9.LAN loads itself, MSM31X.NLM, and ETHERTSM.NLM.

```
LOAD X:\LSLENH [Enter]
```

```
LOAD X:\3C5X9 [Enter]
```

If this order is not followed, the driver will not function correctly.

Also, if you want to use the monitor utility, use the MONITOR.NLM file located on the EtherDisk diskette.

Installing the 3C529 Adapter Drivers for a Non-NetWare NOS

To install non-NetWare NOS drivers, perform these steps:

1. **Return to the main menu.**
2. **Select Network Drivers and press [Enter].**
3. **Select the appropriate driver for your network operating system and follow the instructions given in the menu.**



***NOTE:** All network adapters in the EtherLink III Parallel Tasking adapter family use the same drivers. The drivers are backward-compatible with other members of the family.*

Chapter 1

Installation

This chapter describes how to install the 3C529 adapter in your computer.

Unpacking the Adapter

The contents of your 3C529 adapter package are listed below. If any of these items are missing, contact your authorized network supplier immediately.

- 3C529 or 3C529-TP adapter
- *EtherLink III Parallel Tasking 16/32-Bit Micro Channel Adapter Guide*
- *EtherDisk* diskette for the EtherLink III family of adapters



CAUTION: *The adapter is packed in an antistatic bag to protect it during shipment. To avoid damaging any highly static-sensitive components on the adapter or the computer, be sure to reduce any static electricity on your person. One way to do that is to touch the metal chassis of your computer. You can maintain grounding by wearing a wrist strap attached to the chassis.*

- 1. Carefully lift the adapter out of the box and set it aside.**

2. Return all packing materials to the shipping container and store the container in a safe place.

If you need to return the adapter to 3Com, you must pack it in the original (or equivalent) packing material, or the warranty will be voided.

3. Remove the adapter from its antistatic bag.

4. Check the adapter for any visible signs of damage.

If you find a problem, immediately notify your network supplier and the carrier that delivered the adapter.

5. Place the adapter back in its antistatic bag until you are ready to install it.



NOTE: After the adapter has been unpacked, fill out the Product Registration Card at the back of this manual and return it to 3Com. Or call 1-800-NET-3Com for immediate registration.

Installing the Boot PROM

The boot PROM is optional and can be purchased separately. If you are installing it onto the adapter, follow the instructions that accompanied the boot PROM.

Installing the Adapter



WARNING: The adapter board will be installed in a computer which operates with voltages that can be lethal. Before you remove the cover of your computer, you must observe the following steps to protect yourself and prevent damage to the system's components.

1. Turn off the computer and unplug the unit from its power source.
2. Disconnect all cables that are connected to the main system unit.
3. Remove any jewelry from your hands and wrists.
4. Use only insulated or nonconductive tools.
5. Remove the computer's cover and choose an expansion slot (see Figure 1-1).

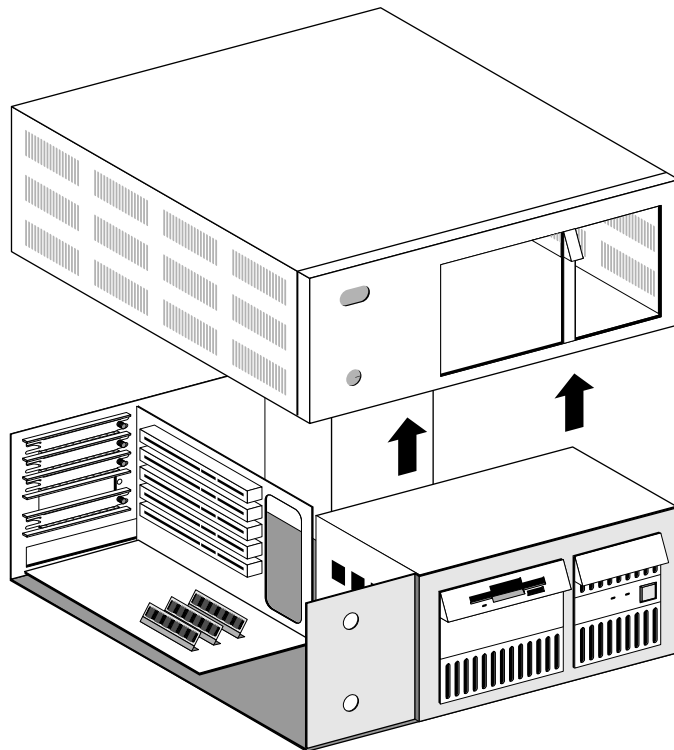


Figure 1-1. Removing the Cover

6. Unscrew the backplate retaining screw.

7. Remove the expansion slot's backplate (see Figure 1-2).

You can install the 3C529 adapter in any 16- or 32-bit expansion slot.

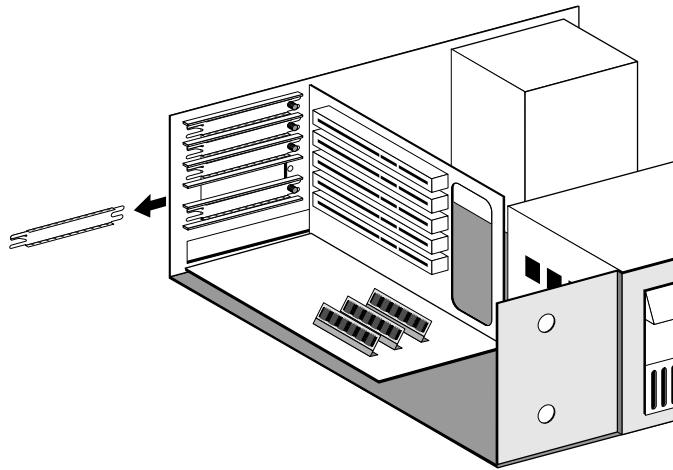


Figure 1-2. Removing the Backplate

8. **Insert the 3C529 adapter into the 16- or 32-bit expansion slot and secure it with the screw (see Figure 1-3).**

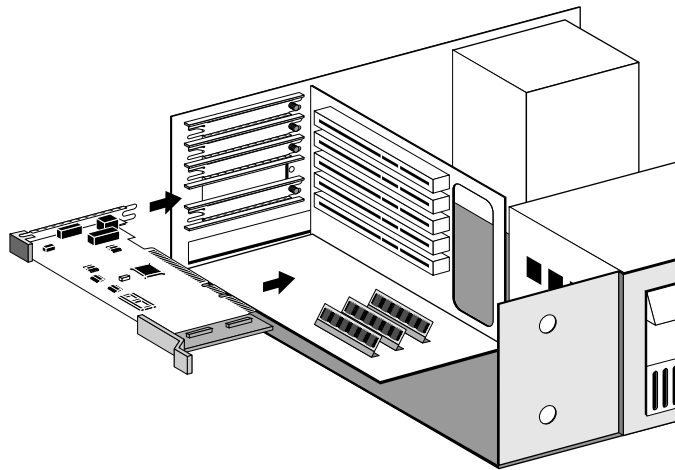


Figure 1-3. Inserting the Adapter

9. **Tighten the backplate retaining screw.**
10. **Replace the computer's cover.**
11. **Reconnect all devices and cables except the network cable.**
12. **Turn the computer on.**

Proceed to Chapter 2 to configure the computer.

Chapter 2

Configuring Your Computer

This chapter explains how to configure your computer for the 3C529 adapter.

When the computer starts, the following error message appears:

```
00165-Adapter Configuration Error
```

The error occurs because the adapter is not in the computer's current configuration. To configure your computer:

- 1. Make a backup copy of the *PS/2 Reference Diskette*.**



***NOTE:** If you are using a Micro Channel computer that is not manufactured by IBM, use the corresponding reference diskette that comes with your computer.*

- a. Insert the *PS/2 Reference Diskette*.
- b. Turn on the computer.
- c. At the main menu select Backup/Restore System Programs.
- d. Select Backup the Reference Diskette.

Follow the instructions on the screen to make the backup of the reference diskette.

- 2. With the backup copy of the *PS/2 Reference Diskette* still in drive A, press [Ctrl]+[Alt]+[Del] to reboot.**

3. When the main menu appears, select Set Configuration and press [Enter].

4. Select Run Automatic Configuration and press [Enter].

The automatic configuration method assumes you are using the on-board transceiver and that the 3C529 Adapter Description File (ADF) is already installed on the *PS/2 Reference Diskette*. If this is not the case, go to step 5.



NOTE: *The ADF contains the defined set of configuration options for the adapter that will allow it to function in the computer.*

- a. When the automatic configuration is complete, exit the program and remove the copy of the *PS/2 Reference Diskette*.
- b. Reboot your computer under DOS.

5. If the ADF is not on the *PS/2 Reference Diskette* or if you have an external transceiver, do not configure your computer automatically.

Continue to the next section to change the computer's configuration.

6. Proceed to Chapter 3, "Changing the 3C529 Adapter Options" if you want to change the adapter options.

If you do not need to change the adapter, proceed to Chapter 4, "Connecting to the Network."

Verifying or Changing the Computer's Configuration

To verify your computer's configuration, select View Configuration from the main menu on the *PS/2 Reference Diskette*. The computer's configuration is displayed.

To change your computer's configuration, follow these steps:

1. Select Set Configuration from the main menu.

The Set Configuration menu is displayed.

2. Select Change Configuration.

The program displays the computer's configuration, which includes the settings for the adapter and the slot it is installed in. Confirm that these are the configuration settings you want. If you need help, press [F1]. If you want to change the configuration settings, use the arrow keys to select a setting and press [F5] or [F6] to scroll through a list of the available choices.



NOTE: *If you are using an external transceiver, be sure to set Transceiver Type to External.*

- 3. To save your settings press [F10]. Then press [Enter].**
- 4. Press [F3] to return to the Set Configuration menu.**
- 5. Press [F3] again to exit the program.**
- 6. Remove the copy of the *PS/2 Reference Diskette*.**
- 7. Press [Enter] to reboot your computer under DOS.**

Proceed to Chapter 3 if you want to change the adapter options. Otherwise, proceed to Chapter 4, "Connecting to the Network."

Chapter 3

Changing the 3C529 Adapter Options

This chapter explains how to change the Network Driver Optimization Speed and Maximum Modem Speed settings of the 3C529 adapter. The *EtherDisk* diskette is used only when configuration files are needed for the 3C529 adapter or when you change the Network Driver Optimization or Maximum Modem Speed settings. All other parameters are automatically configured by the *PS/2 Reference Diskette*.

This chapter consists of the following sections:

- Using the Configuration and Diagnostic Program
- 3C529 Adapter Options

Using the Configuration and Diagnostic Program

You can also use the keyboard (function keys or speed keys) or a mouse to access the command buttons in the program. Each access method is discussed in Appendix A. Follow these steps to use the menu program:

- 1. Make sure that you have booted the computer under DOS.**

3-2 Changing the 3C529 Adapter Options

2. **Place the *EtherDisk* diskette in a floppy drive on your computer and make that drive the current drive.**

For example, if the diskette drive is A, type the following command:

```
A: [Enter]
```

3. **Type at the prompt:**

```
INSTALL [Enter]
```

4. **The first time you use the diskette to install an adapter, a license screen appears. To accept the terms and conditions of the 3Com end-user software license agreement, type the following:**

```
Y
```



NOTE: To view the full text of the license agreement, press [F1].

The auto installation screen shown in Figure 3-1 appears.

5. **Read the screen and press [Enter].**
6. **When the main menu screen shown in Figure 3-2 appears, select Configuration/Diagnostic/Troubleshooting and press [Enter].**

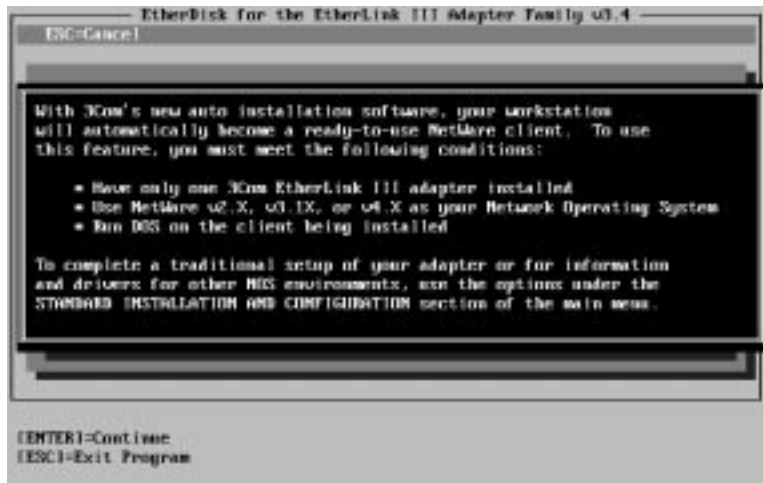


Figure 3-1. Auto Installation Screen

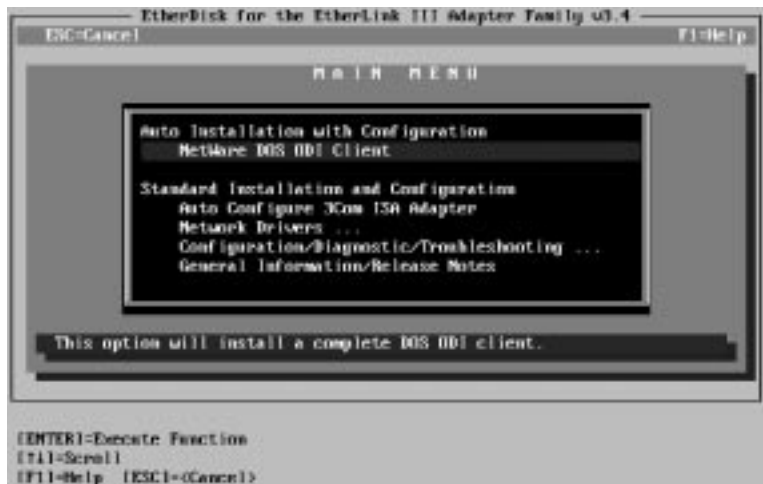


Figure 3-2. Main Menu

3-4 Changing the 3C529 Adapter Options

7. **When the Configuration and Diagnostic screen appears, select Configuration and Diagnostic Program.**

If you have multiple adapters installed, a window screen displaying multiple adapters will appear. Highlight the adapter you want to configure and press [Enter]. A screen similar to the one shown in Figure 3-3 appears, showing your selection.

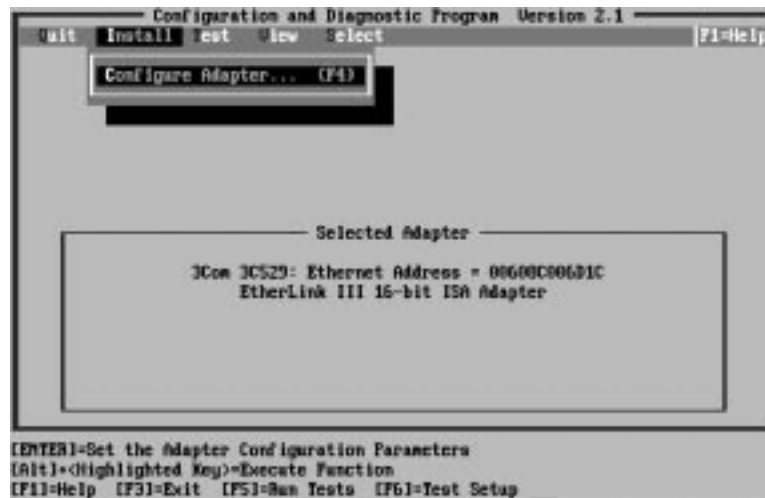


Figure 3-3. Main Window with First Adapter Selected

8. **Under the Install pull-down menu, Configure Adapter appears already highlighted. Press [Enter].**

The Adapter Configuration screen appears, showing two selections: Network Driver Optimization and Maximum Modem Speed. Table 3-1 lists the software options, the default setting, and the available settings.

Table 3-1. Option Settings

| Option | Default Setting | Available Settings |
|-----------------------------|-----------------|---|
| Network Driver Optimization | DOS Client | DOS Client, Windows or OS/2 [®] Client, Server |
| Maximum Modem Speed | 9600 Baud | No Modem, 1200, 2400, 9600, 19200, and 38400 Baud |

- 9. Use the arrow keys to highlight one of the options. Press [Enter].**

A second dialog box appears.

- 10. Use the arrow keys to scroll through the list of settings for that option. Select a setting and press [Enter].**

- 11. Press [Tab] to highlight <OK>. Press [Enter].**

You must highlight <OK> and press [Enter] to save the new settings to the adapter.



NOTE: If you want to use the same settings on other adapters, you can save the configuration settings to a file. Select <Save> under <File Options> in the Adapter Configuration dialog box and type in a filename. For example, type:

```
D:\CONFIG\3C529.SET
```

to save the settings to the default file 3C529.SET, in the CONFIG directory in drive D. Refer to the on-line help for more information.

- 12. When the adapter is configured successfully, proceed to Chapter 4, “Connecting to the Network.”**

3C529 Adapter Options

The 3C529 adapter options and default settings are:

- Network Driver Optimization [DOS Client]
- Maximum Modem Speed [9600 Baud]

Network Driver Optimization

This option specifies whether to optimize the network driver for a DOS client, a Microsoft® Windows™ or IBM OS/2 client, or a server environment. Changing this option may improve network performance as well as your system's responsiveness. The driver will attempt to optimize various parameters, such as CPU utilization, to the environment specified. For example, a client may use a larger percentage of the CPU under DOS to improve network throughput. On a server this may be inappropriate, so the driver will attempt to minimize the CPU usage to optimize performance in a server environment.

Maximum Modem Speed

The modem speed you choose tells the adapter how long it can disable interrupts without causing problems with the serial port. The lower the modem speed, the longer the adapter can keep interrupts disabled. On slower computers, running with longer disabled interrupts can improve network performance. On those computers, changing the option setting to 2400, 1200, or No Modem may improve performance. On faster computers, there is little performance difference between the settings.

If you experience problems with your modem, such as dropped characters or excessive retries, selecting a higher option setting should help. If the problem is not due to the EtherLink III driver, changing the option setting will not make a difference.



NOTE: *The default value (9600 baud) works whether you have a modem or not, or even if the modem is slower than the default (example, 2400 baud). Do not change the default option setting unless you experience problems.*

If you experience compatibility problems between your adapter and another device in the system other than a modem, selecting a higher option setting may help.

Chapter 4

Connecting to the Network

This chapter describes how to connect the following types of network cables to the 3C529 adapters:

| Cable Type | Software Setting | Connector |
|-------------------|-------------------------|------------------|
| Thin coaxial | On-board transceiver* | BNC |
| Twisted-pair | On-board transceiver† | RJ-45 |
| Thick coaxial | External transceiver | AUI (15-pin) |

* Default setting for the 3C529 adapter.

† Default setting for the 3C529-TP adapter.



NOTE: To connect to the network, the computer must be turned off.

4-2 Connecting to the Network

Figure 4-1 shows the backplates of the adapters.

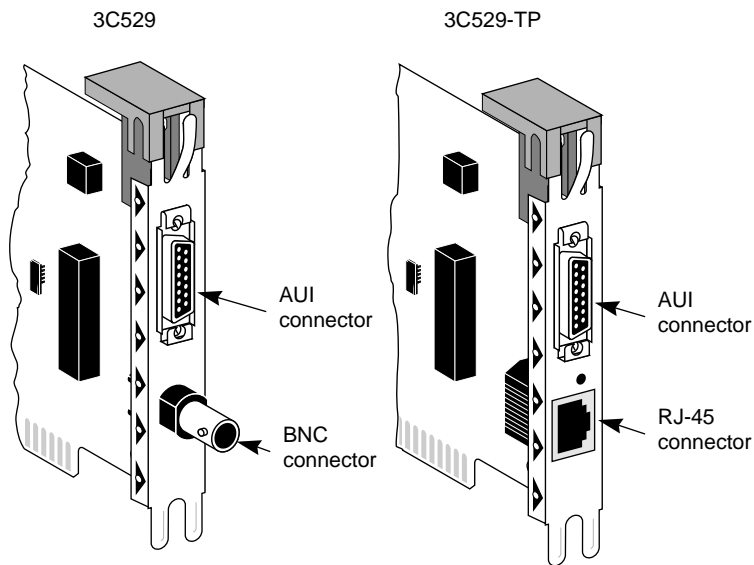


Figure 4-1. Adapter Backplates

Connecting to the On-board Transceiver

Follow these steps to connect the appropriate cable to the 3C529 adapter.

Connecting to Thin Ethernet Cable

The 3C529 adapter default setting uses the on-board transceiver with thin Ethernet cable.

1. **Locate the adapter's BNC connector on the backplate.**
2. **Locate a T connector on the thin Ethernet cable.**

3. **Connect the T connector to the adapter's BNC connector (see Figure 4-2).**
 - a. Align the T connector's slots with the pegs on the BNC connector.
 - b. Push the T connector in and twist it clockwise until it stops.

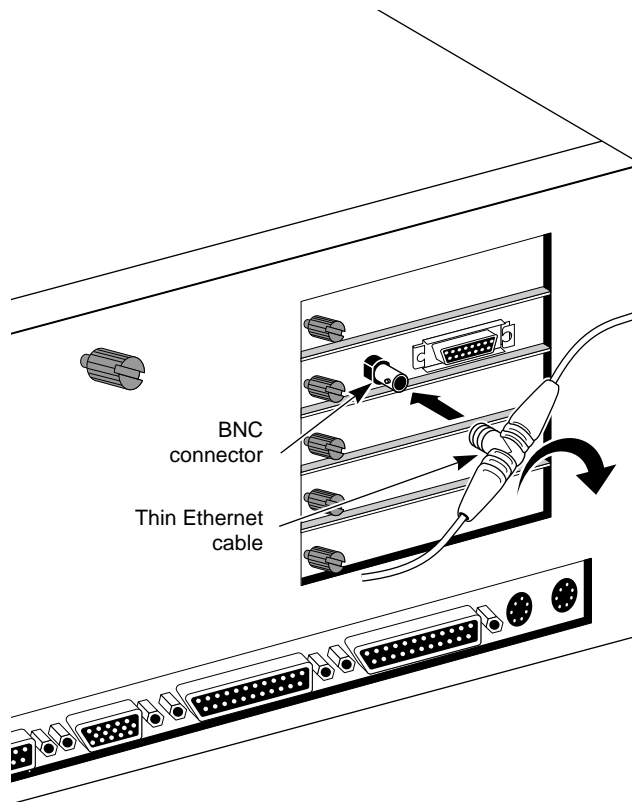


Figure 4-2. Connecting Thin Ethernet Cable

Connecting to Twisted-pair Cable

The 3C529-TP adapter default setting uses the on-board transceiver with twisted-pair cable.

1. **Make sure that the connector on your cable is wired appropriately for the adapter.**

Figure 4-3 shows the RJ-45 connector pin assignments.

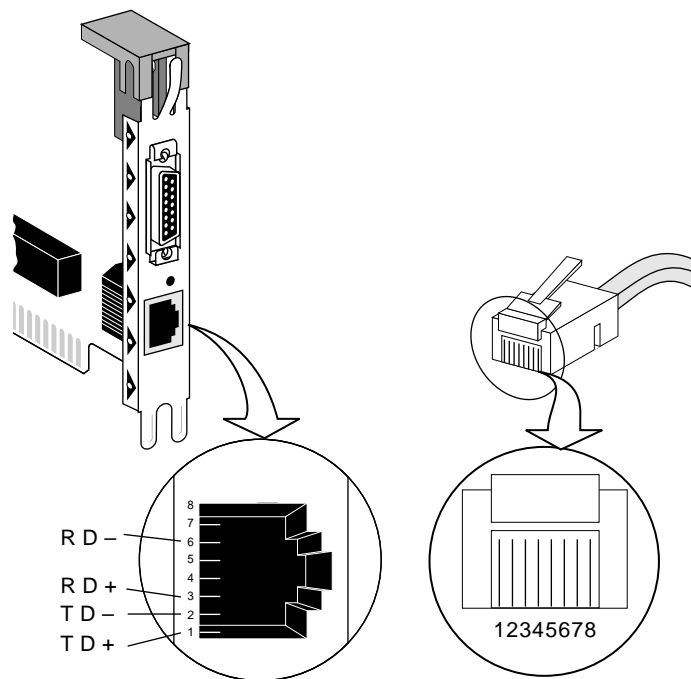


Figure 4-3. RJ-45 Connector Pin Assignments

2. **Align the RJ-45 plug on the end of the twisted-pair cable with the notch on the adapter's connector.**

3. Insert the RJ-45 plug into the adapter socket (see Figure 4-4).



NOTE: The LED on the 3C529-TP adapter confirms that there is a link to the hub. When you first install the adapter and power up the computer, the LED will be lit, but the link beat is inactive. For the link beat to be active (enabled), you need to have run the Group 3 test or have loaded the network drivers. Refer to the section “Link Beat LED” in Chapter 6 for more information.

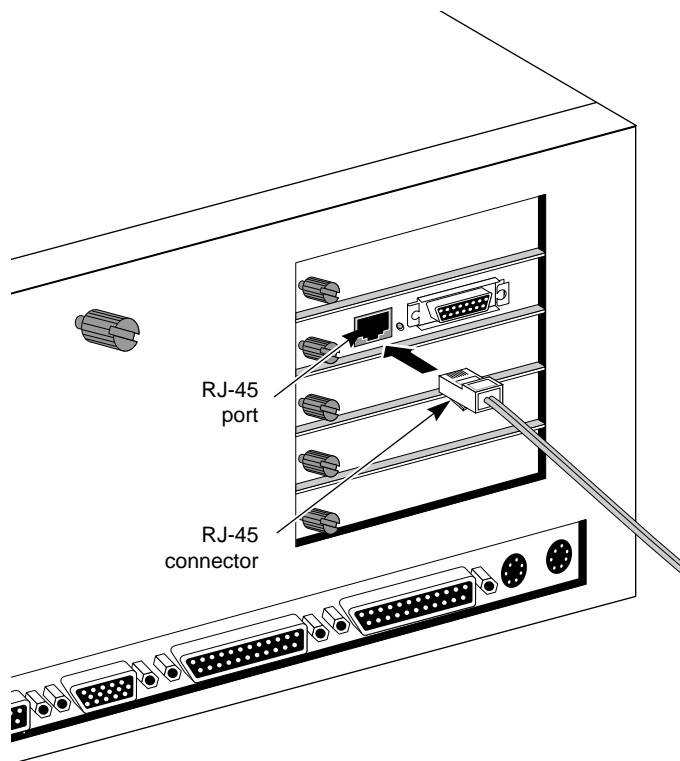


Figure 4-4. Connecting Twisted-pair Cable

Connecting to the External Transceiver

When using an external transceiver, you must first set the transceiver type to External when you configure the adapter. Refer to Chapter 2. Table 4-1 lists the pin assignments for the AUI (attachment unit interface) connector.

Table 4-1. AUI Connector Pin Assignments

| Pin | Function |
|------------|------------------|
| 1 | Collision shield |
| 2 | Collision + |
| 3 | Transmit + |
| 4 | Receive shield |
| 5 | Receive + |
| 6 | Power return |
| 7 | Not used |
| 8 | Not used |
| 9 | Collision – |
| 10 | Transmit – |
| 11 | Transmit shield |
| 12 | Receive – |
| 13 | +12 volts |
| 14 | Voltage shield |
| 15 | Not used |

To connect the AUI cable:

1. **Locate the adapter's AUI connector and move the slide latch to the open position (see Figure 4-5).**

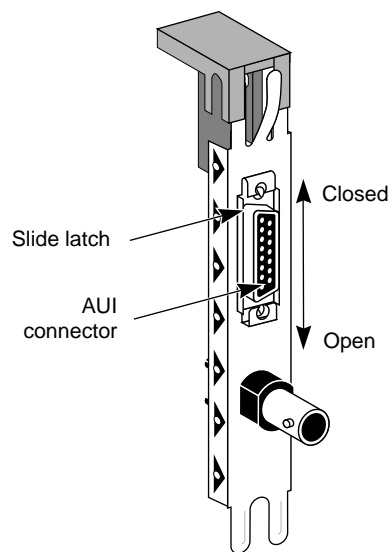


Figure 4-5. Slide Latch

2. **Connect the AUI cable to the AUI connector on the adapter, as shown in Figure 4-6.**

Move the slide latch to the closed position to lock the cable in place.

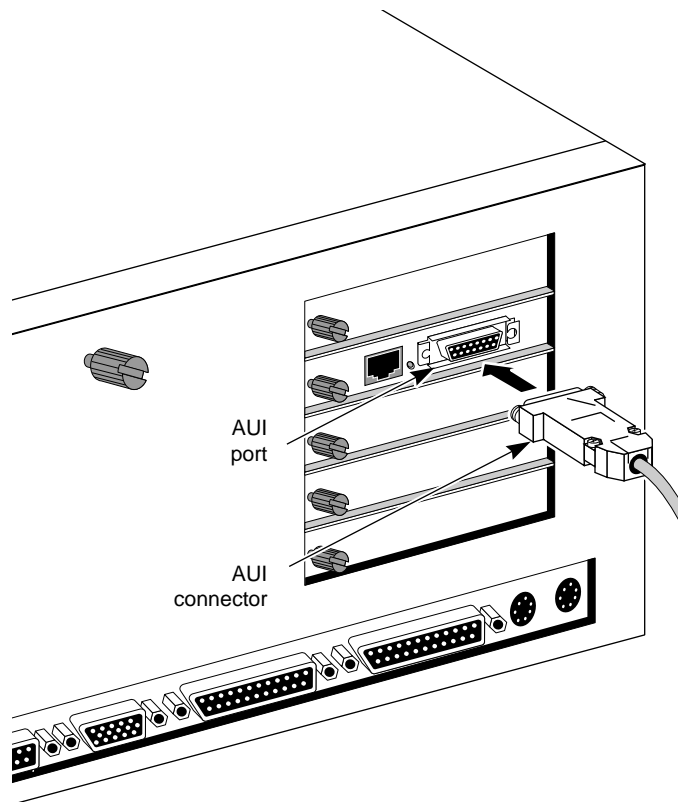


Figure 4-6. Connecting the AUI Cable

3. Connect the other end of the AUI cable to the external transceiver (see Figure 4-7).

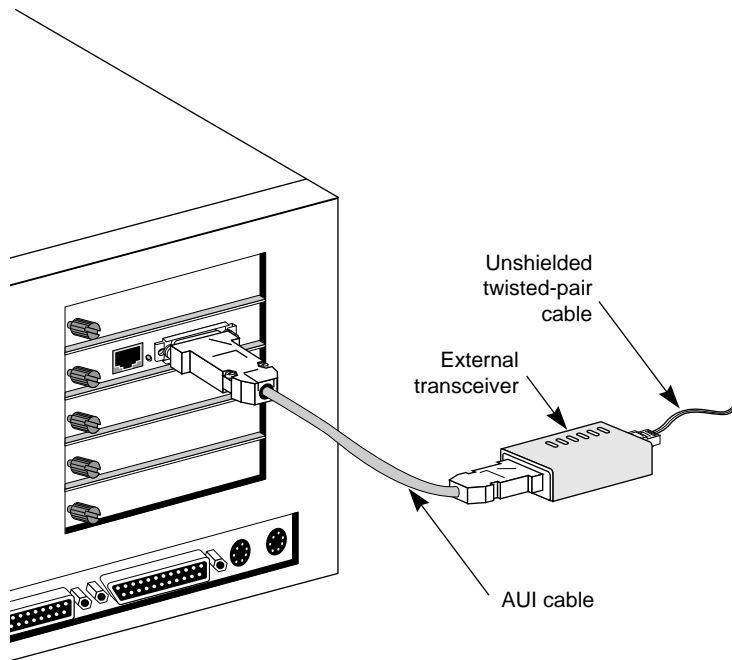


Figure 4-7. Attaching the External Transceiver

Proceed to Chapter 5 to install the network drivers.

Chapter 5

Installing the Network Drivers

This chapter describes AutoLink automatic installation procedures for Novell® NetWare network drivers and manual installation procedures for non-NetWare network drivers. These network drivers are required to let the 3C529 adapter work with your network operating system (NOS). The *EtherDisk* diskette contains the latest versions of the network drivers. The *EtherDisk* diskette also contains files, a utility program to automatically install some drivers, and software driver directories that include NDIS and other drivers.



NOTE: *To obtain network operating system drivers not included on the EtherDisk diskette, please contact the manufacturer of that NOS or application. To obtain software driver updates and patches, use one of the bulletin board services listed in Appendix D, “Technical Support.”*

Once you have configured the computer and the adapter as described in Chapters 2 and 3, you can perform the auto installation procedure from the *EtherDisk* diskette if your network environment meets the following requirements:

- Your network operating system must be NetWare 2.x, 3.1x, or 4.x.
- Your computer must have an 80286 or higher processor.

5-2 Installing the Network Drivers

- Your computer must have only one 3C529 adapter installed in it.
- Your computer must be intended for use as a DOS client.

Performing the AutoLink auto installation procedure from the *EtherDisk* diskette accomplishes the following:

- Installs all necessary NetWare DOS client software
- Automatically logs onto the server and updates the client software if your system administrator has already configured a 3Install account on your server
- Modifies the CONFIG.SYS and AUTOEXEC.BAT files for NetWare users

Auto Installing the 3C529 Adapter Drivers for a NetWare NOS

Follow these steps to install the Novell NetWare network drivers automatically if your network environment meets the NOS requirements described above.

- 1. Make sure that you have installed and configured the adapter, booted the computer under DOS, and have connected your computer to the network.**
- 2. If the *EtherDisk* diskette is already in your floppy drive, go directly to step 7. Otherwise, insert the *EtherDisk* diskette in a floppy drive on your computer.**
- 3. Make that drive the current drive.**

For example, if the diskette drive is A, type the following command:

```
A: [Enter]
```

4. Type at the prompt:

```
INSTALL [Enter]
```

5. The first time you use the diskette to install an adapter, a license screen appears. To accept the terms and conditions of the 3Com end-user software license agreement, type the following:

```
Y
```

The auto installation screen shown in Figure 5-1 appears.

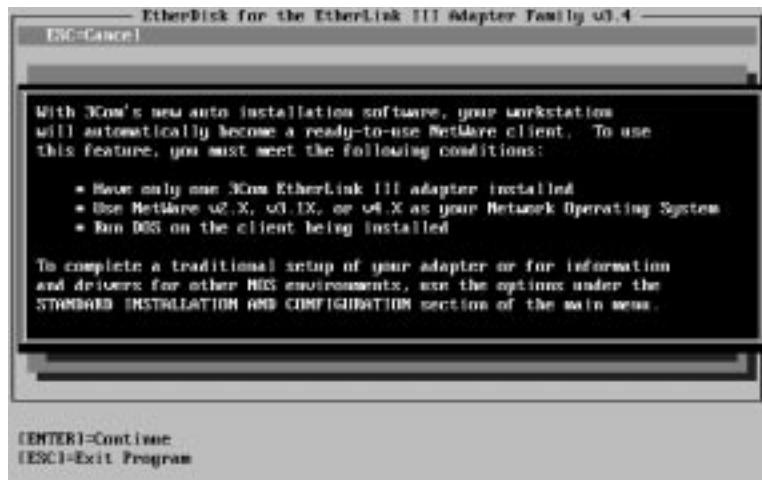


Figure 5-1. Auto Installation Screen

6. Read the screen and press [Enter].

5-4 Installing the Network Drivers

7. When the main menu screen shown in Figure 5-2 appears, select NetWare DOS ODI Client and press [Enter].

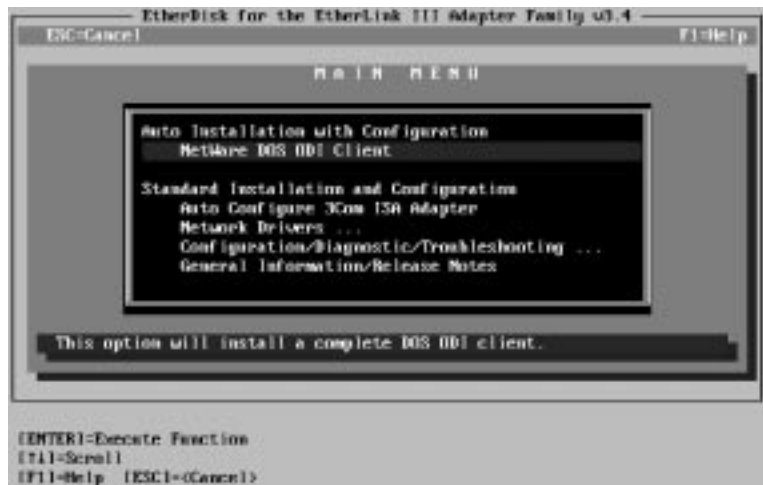


Figure 5-2. Main Menu



NOTE: Auto installation with configuration will take several minutes.

8. Reboot the computer when the auto installation process is finished.

When you do this, a DOS ODI client starts.



NOTE: To ensure that your computer is configured with the latest client software, ask your system administrator to configure a 3Install account on the server.

Instructions for configuring a 3Install account are contained in the *README.TXT* file located in the `\QINSTALL\SERVER` directory on the EtherDisk diskette.



NOTE: The NetWare 4.x server driver for NetWare 3.11 requires that you load the 3C5X9.LAN driver along with the following NLMs (NetWare Loadable Modules).

- LSLENH.NLM
- PATCHMAN.NLM
- MSM31X.NLM
- ETHERTSM.NLM

All of the files are located on the EtherDisk diskette.

These files must all be copied to the same subdirectory. If you are not loading them from the SYSTEM volume, you must supply the DRIVEID:\PATH to the location of the files.

Type in the following commands in the order shown (X: can be any drive). LSLENH.NLM loads itself plus PATCHMAN.NLM. 3C5X9.LAN loads itself, MSM31X.NLM, and ETHERTSM.NLM.

```
LOAD X:\LSLENH [Enter]
```

```
LOAD X:\3C5X9 [Enter]
```

If this order is not followed, the driver will not function correctly.

Also, if you want to use the monitor utility, use the MONITOR.NLM file located on the EtherDisk diskette.

Installing the 3C529 Adapter Drivers for a Non-NetWare NOS

To install non-NetWare NOS drivers, follow these steps:

1. Return to the main menu shown in Figure 5-2.

If you have exited the *EtherDisk* diskette, follow steps 1 through 6 in the section “Auto Installing the 3C529 Adapter Driver for a NetWare NOS” to return to the main menu.

2. When the main menu screen shown in Figure 5-2 appears, select Network Drivers and press [Enter].

3. Select the appropriate driver for your network operating system and follow the instructions given in the menu.

For some operating systems, drivers are updated or copied to the selected disk drive automatically, depending on the menu selection. For others, selecting the driver will provide you with on-line instructions for installing the driver.



NOTE: All network adapters in the *EtherLink III Parallel Tasking* adapter family use the same drivers. The drivers are backward-compatible with other members of the family.

Refer to your network operating system manuals for instructions about using the driver with your network operating system.

If You Are Running Multiple Adapters

If you are running multiple adapters, you need to specify which adapter you want the driver to recognize by inputting the slot number into the correct file.

With 3+Open or LAN Manager

If you are running 3Com's 3+Open® or Microsoft LAN Manager network operating systems, input the slot number in the PROTOCOL.INI file. For example:

```
SLOT = X
```

where *X* is a number from 1 to 8. This file is located on the startup diskette or the hard drive.

With NetWare

If you are running NetWare and you have installed multiple adapters in a PS/2 computer, make sure that you load the network driver for each adapter. For example, if you install three 3C529 adapters, you must load the driver three times.

Only one adapter can bind or connect with the server at any one time. Specify the slot number for that adapter in the NET.CFG file. For example:

```
SLOT X
```

where *X* is a number from 1 to 8.

For more information, refer to your NetWare manuals.

Chapter 6

Troubleshooting

This chapter describes information for isolating and solving problems.

Running the Diagnostic Program

Run the diagnostic program on your installed 3C529 adapter to test for setup/configuration or physical board problems. The program is located on the *EtherDisk* diskette.

The diagnostic program contains three groups of tests.

- Group 1 tests the physical components, connectors, and circuitry on the adapter.
- Group 2 verifies the adapter's ability to transmit data over the network.
- Group 3 verifies the adapter's ability to transmit and receive data while on the network.

The diagnostic program tests the adapter, not the network.



NOTE: Make sure that no network drivers or memory managers are installed before you run the Configuration and Diagnostic Program.

6-2 Troubleshooting

To start the Configuration and Diagnostic Program, follow these steps:



NOTE: *If this computer is an operating server, notify all users of the server to save their work and log out from the network. The Configuration and Diagnostic Program disrupts the normal operation of servers and workstations, so work that is not saved may be lost.*

- 1. Make sure that you have booted the computer under DOS.**
- 2. Place the *EtherDisk* diskette in a floppy drive on your computer and make that drive the active drive. For example:**

```
A: [Enter]
```

- 3. Type at the prompt:**

```
INSTALL [Enter]
```

- 4. The first time you use the diskette to install an adapter, a license screen appears. To accept the terms and conditions of the 3Com end-user software license agreement, type the following:**

```
Y
```

The auto installation screen shown in Figure 6-1 appears.

- 5. Read the screen and press [Enter].**
- 6. When the main menu shown in Figure 6-2 appears, select Configuration/Diagnostic/Troubleshooting and press [Enter].**

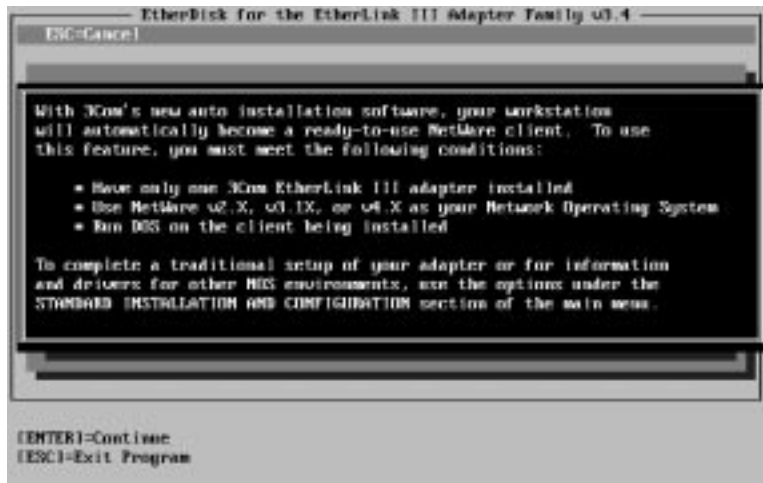


Figure 6-1. Auto Installation Screen

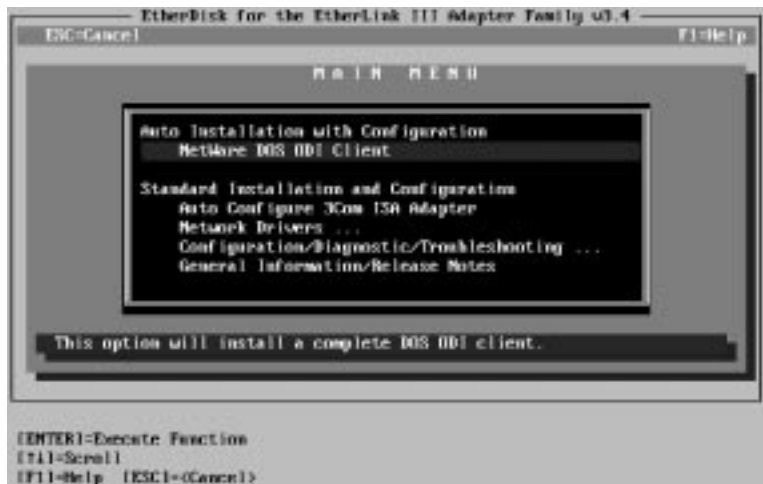


Figure 6-2. Main Menu

7. When the Configuration and Diagnostic screen appears, select Configuration and Diagnostic Program.

If you are testing multiple adapters, a screen displaying multiple adapters will appear. Highlight the adapter you want to test and press [Enter]. A screen similar to the one shown in Figure 6-3 appears, showing your selection.

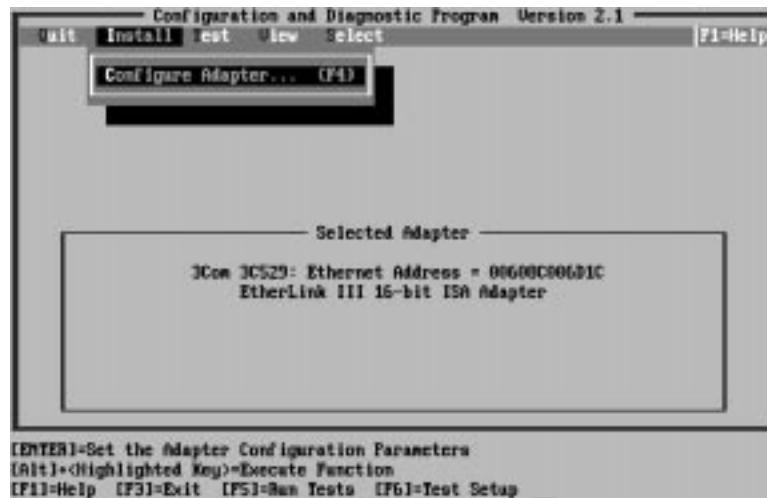



Figure 6-3. Main Window with Adapter Selected

Starting the Group 1 Tests

The Configuration and Diagnostic Program is already set up to run the Group 1 tests. To change the test parameters, see the next section, "Changing the Test Setup."

 **NOTE:** You can also run the tests from the command line. For more information, refer to Appendix A.

1. Under the Test pull-down menu, select Run Tests. Press [Enter].

The Run Tests dialog box appears, similar to the one shown in Figure 6-4.

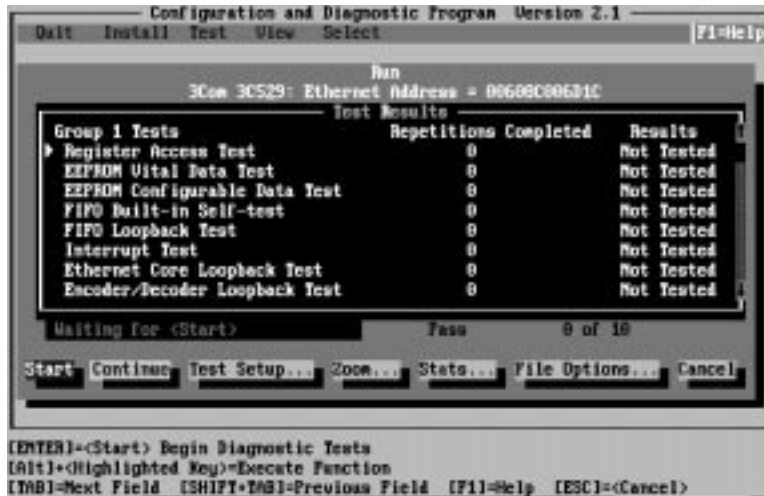


Figure 6-4. Run Tests Dialog Box

2. Press [Enter] to start the Group 1 tests.

Each test is set up to run ten times unless you specify otherwise. The test results are displayed on the screen with Passed or Failed in the Results column.

6-6 Troubleshooting

If you want to run the tests continuously, go to the Repetitions box on the Test Setup screen shown in Figure 6-5, and select Continuous (and deselect Halt on Error in the Errors box). The tests will continue to run until you abort them. Refer to the section “Changing the Test Setup” for more information.

Changing the Test Setup

If you want to change the test parameters, follow these steps:

1. **Choose Test Setup from the Test menu in the main window or use the <Test Setup> command button in the Run Tests dialog box.**

The Test Setup dialog box appears, similar to the one shown in Figure 6-5.



Figure 6-5. Test Setup Dialog Box

2. **Press [Tab] to move from field to field and highlight any field within the Test Setup dialog box.**
3. **If you want to change a setting in any field, follow these steps:**
 - a. In the Group Select box, use the arrow keys to select a test group.
 - b. In the Group X Tests box, use the arrow keys to highlight a test. Press the [Space Bar] to enable or disable an individual test.
 - c. In the Repetitions box, specify the number of times you want to run the Group 1 tests, or use the arrow keys to select the Continuous option.
 - d. In the Errors box, press the [Space Bar] to select or deselect the Halt on Error parameter.
4. **When you are satisfied with the new test setup, highlight the <OK> command button and press [Enter].**
5. **To run the tests, choose Run Tests from the Test menu and select the <Start> command button.**

For a description of these tests, refer to the on-line help in the Configuration and Diagnostic Program.

If a Test Fails

If any test fails, you can get additional information by highlighting the test that failed in the Run Tests dialog box and pressing [Enter]. You can also highlight the <Zoom> command button and press [Enter]. The program notifies you of the error and suggests actions you can take to solve the problem.

Setting Up the Group 2 Test



CAUTION: Do not use an active network to run the Group 2 test.

Group 2 tests the adapter's ability to transmit and receive data over the network. This test requires installation of a loopback plug at the adapter's transceiver connection. Or, you can run the test on an inactive network.



NOTE: There is no loopback test available for the 3C529-TP adapter.

Connecting a Loopback Plug

Follow these steps:

1. **Connect the loopback plug to the round BNC connector on the back of the 3C529 adapter.**
2. **Enable the Group 2 test from the Test Setup dialog box. Highlight <OK> and press [Enter].**
3. **Go to the Run Tests dialog box to start the test.**
4. **After the test is completed:**
 - a. Exit the Configuration and Diagnostic Program.
 - b. Remove the loopback plug.

If you do not have a loopback plug, you can order one from your authorized network supplier (3Com part number 3C537) or you can make your own. To assemble the loopback plug, connect two 50-ohm network cable terminators to a T connector, as shown in Figure 6-6. You can purchase the terminators from your network supplier (3Com part number 3C535).

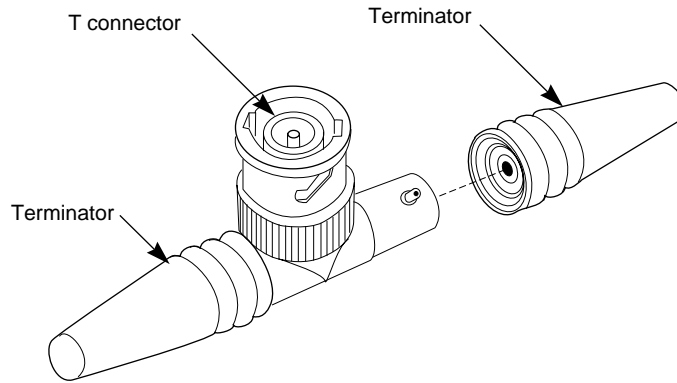


Figure 6-6. Assembling a Loopback Plug

Setting Up the Group 3 Test



CAUTION: Do not use an active network to run the Group 3 test.

Group 3 tests the adapter's ability to transmit and receive data from another station on the network. To run the Group 3 test on the network, you need a second computer set up as an echo server. The echo server receives packets from the adapter being tested and echoes them back to the adapter.

The second computer must contain a 3Com adapter. The diagnostic program that comes with the adapter supports the EtherLink III echo server diagnostic program.

Setting Up an Echo Server

If your echo server contains the 3C529 or 3C529-TP adapter, select the Echo Server menu item under the Test menu, and select the <Start> command button to make the computer an echo server.

If you are setting up an echo server using a 3Com adapter other than the 3C529 or 3C529-TP adapter, follow these steps.

1. Select a computer to use as an echo server.

Make sure that the computer is connected to an inactive network.

2. Insert the *EtherDisk* diskette containing the 3Com adapter diagnostic program in a floppy drive.

3. Start the diagnostic program on the echo server.

The diagnostic program that you use depends upon the adapter board that is installed in the echo server. Enter 3CXXX, selecting the appropriate program from the following list:

| Diagnostic Program | Adapter |
|---------------------------|--|
| 3C503 | EtherLink II® or II TP, EtherLink II/16 or II/16 TP |
| 3C505 | EtherLink Plus® |
| 3C507 | EtherLink 16 or EtherLink 16 TP |
| 3C5X9CFG | All EtherLink III adapters |
| 3C523 | EtherLink/MC |
| 3C523TP | EtherLink/MC TP |
| 3C527 | EtherLink/MC 32 |

4. From the main menu, select Echo Server Setup.

The program notifies you that your computer is now set up as an echo server.

Running the Group 3 Test

To run the Group 3 test on the 3C529 adapter:

1. Start the Configuration and Diagnostic Program.

This program must be on the computer containing the adapter you want to test.

2. Select Test Setup from the Test menu.

3. Enable the Group 3 test. Highlight <OK> and press [Enter].

4. Go to the Run dialog box to start the test.

5. After the test is completed:

- a. End the program on the echo server.
- b. Exit the Configuration and Diagnostic Program.

Troubleshooting Tips

If the diagnostic tests fail, the adapter may not be defective. The problem may be incorrect option settings, option settings that conflict with the settings of other boards, or improper installation. Follow these steps to test the adapter further.



CAUTION: *Make sure that you turn off the power before inserting or removing the adapter from the computer.*

1. **Make sure that the 3C529 or 3C529-TP adapter is installed in an IBM PS/2 or in any compatible UL-listed personal computer containing a Micro Channel bus.**
2. **Make sure that the board is seated correctly in the slot. Check the adapter installation by reviewing the installation instructions in Chapter 1.**



NOTE: The maximum network speed supported by the 3C529 adapters is 10 MHz.

3. **Inspect all cables and connections.**

If you are using thin Ethernet cable, make sure that you have a T connector attached to the adapter and all other adapters on the network. Make sure that the thin Ethernet segment is terminated at both ends with a 50-ohm terminator.

Use only IEEE certified cabling: RG58 AU cable for thin Ethernet and 24 or 26 AWG cable for 10BASE-T.

4. **Make sure that you booted your computer under DOS, and that no device drivers or memory managers are loaded.**
5. **If you are running the Group 2 test (only on the 3C529 adapter), make sure that the loopback plug is securely attached to the adapter's BNC connector or that the adapter is attached to a properly cabled and inactive network.**

If this test fails, try another loopback plug.

6. **If you are running the Group 3 test, make sure that the adapter is connected to a properly cabled and inactive network and that an echo server is set up on the network.**
7. **Make sure that the settings for the adapter's options are not the same settings used in the system or on any other adapter boards installed in the computer.**
8. **Install the adapter in another slot and run the diagnostic tests again.**

The slot may be defective.

9. **If you have more than one 3C529 adapter, replace the failed adapter with a working one and run the diagnostic tests again.**

Use the same option settings as those used on the failed adapter.

If the working adapter passes all tests, the original adapter is probably defective. Refer to Appendix D, "Technical Support."

10. **Install the adapter in another functioning computer and run the tests again.**

Your computer may be defective. If the adapter passes the tests in the second computer, contact the reseller or manufacturer of the computer.

Hardware

Check whether there are any specific hardware problems, such as broken traces or loose/broken solder connections.

Link Beat LED

The 3C529-TP adapter has an LED for the link beat (see Figure 6-7).

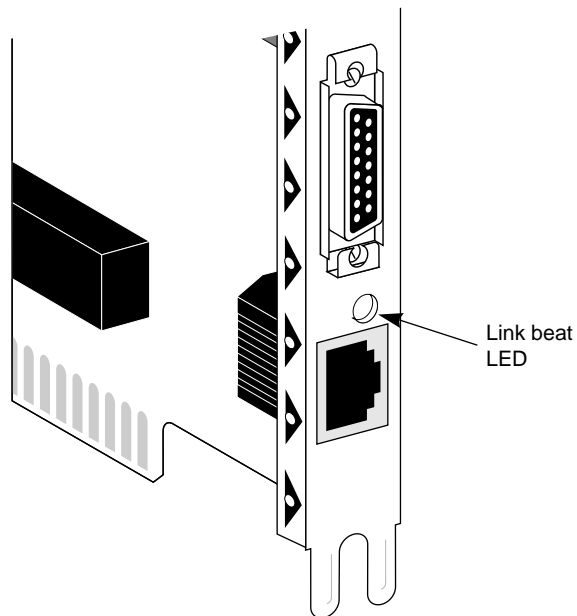


Figure 6-7. Link Beat LED

The link beat LED confirms that there is an active connection between the 3C529-TP adapter and the hub.



NOTE: When you first install the adapter and power up the computer, the LED will be lit, but the link beat is inactive. For the link beat to be active (enabled), you need to have run the Group 3 test or have loaded the network drivers.

If you are experiencing any problems, first make sure that your hub complies with the 10BASE-T specifications. Then check the LED.

- If the LED is on, the link beat is working.
- If the LED is off, the link beat has not been established or there is a problem with the connection between the adapter and the hub.
- If the LED is blinking, the polarity is reversed.

Software

If you have installed the adapter correctly and you still experience problems, check the software.

Make sure that you have configured your computer for the adapter. Refer to Chapter 2.

Make sure that you have installed the correct drivers for the network operating system you are running (refer to Chapter 5).

Additional Information

For any problems not discussed in this chapter, refer to Appendix D, “Technical Support,” for information on 3Com’s on-line technical services. 3ComFactsSM provides technical tips and product information. Ask3ComSM and CardBoardSM provide software updates, drivers, technical tips, and product information.

Appendix A

Using the Configuration and Diagnostic Program

Using the Menus

You can use the keyboard (function keys or speed keys) or a mouse to access the command buttons. Each access method is discussed in this appendix.

The Configuration and Diagnostic Program is arranged in the following hierarchy (see Figure A-1):

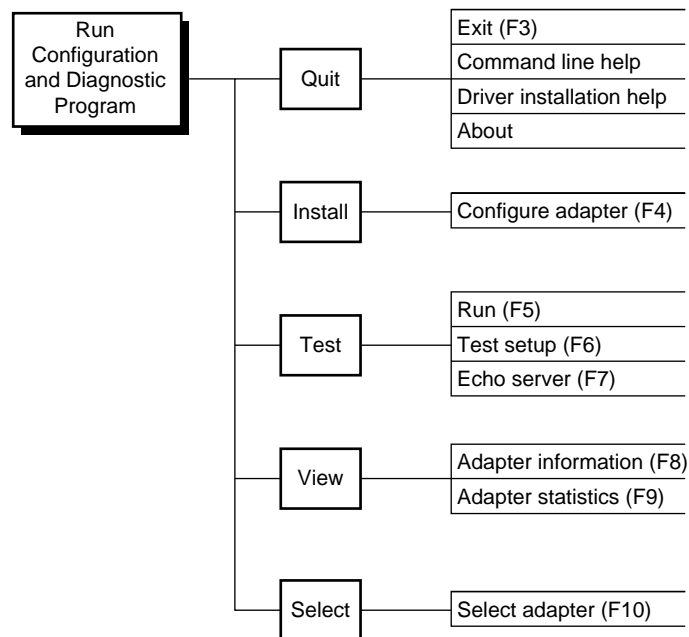


Figure A-1. The Menu Hierarchy

Using the Keyboard

The following table describes the keys to use with the Configuration and Diagnostic Program.

Table A-1. Definition of Keys

| Key | Definition |
|------------|--|
| Arrow Keys | Let you scroll through a list of menu items or a list box. |
| [Del] | Deletes the character at the cursor in a text edit box. |
| [End] | Moves the cursor to the last item in a list box. |
| [Enter] | Starts an action or accepts a selection or user-supplied data. |
| [Esc] | Cancel the current work and exits the dialog box. |
| [F1] | Displays a help screen for any item in a menu or dialog box. |
| [F3] | Exits the Configuration and Diagnostic Program. |
| [F4] | Accesses the Configure Adapter dialog box. |
| [F5] | Accesses the Run dialog box. |
| [F6] | Accesses the Test Setup dialog box. |
| [F7] | Accesses the Echo Server dialog box. |
| [F8] | Accesses the Adapter Information dialog box. |
| [F9] | Accesses the Adapter Statistics dialog box. |
| [F10] | Accesses the Select Adapter dialog box. |
| [Home] | Moves the cursor to the first item in a list box. |

(continued)

Table A-1. Definition of Keys (continued)

| Key | Definition |
|---------------|--|
| [PgDn] | Moves the cursor down one screen. |
| [PgUp] | Moves the cursor up one screen. |
| [Shift]+[Tab] | Moves the cursor backward through the fields in a dialog box. |
| [Space Bar] | Inserts or removes a check from a checkbox. Also enables/disables individual tests in the Test Setup dialog box. |
| [Tab] | Moves the cursor forward through the fields in a dialog box. |

Using the Speed Keys

Press [Alt] and the highlighted letter in any menu item or command button to activate that function.

Using the Mouse

If you have a mouse, you can use it to click on any of the menu items, command buttons, or listed items in a dialog box. Make sure that a mouse driver is loaded.

Choosing a Menu Item

Listed below are the menu items in the Configuration and Diagnostic Program. Each menu item is explained in the help screens. Press [F1], tab to the <Index> command button, and press [Enter] to see the list of help screens included in the program.

Table A-2. Definition of Menu Items

| Menu | Menu Item | Description |
|-------------|--------------------------|---|
| Quit | Exit | Lets you exit the program. |
| | Command Line Help | Explains how to use the program from the command line. |
| | Driver Installation Help | Explains where to access the network drivers for the EtherLink III adapters. |
| | About | Lists the program's version. |
| Install | Configure Adapter | Lets you manually configure the currently selected adapter. |
| Test | Run Tests | Lets you run the diagnostic tests with the chosen test configuration and view the results. Test definitions are located in the on-line help. |
| | Test Setup | Lets you determine which tests will be run by the program. |
| | Echo Server | Lets you set up a computer as an echo server. |

(continued)

Table A-2. Definition of Menu Items (continued)

| Menu | Menu Item | Description |
|-------------|---------------------|--|
| View | Adapter Information | Lets you view specific adapter information. |
| | Adapter Statistics | Displays the network statistics maintained by the adapter. Definitions of the statistics are located in the on-line help. |
| Select | Select Adapter | Lets you select an adapter and view the configuration and adapter-specific information for the selected adapter. |

Using the File Options

The File Options are located in three separate dialog boxes under the menu items Configure Adapter, Run Tests, and Test Setup. The options are:

- Load: lets you load a previously saved file that contains either a specific configuration setup or a test setup that you want to run on the installed adapter.
- Save: lets you save the currently displayed information to a file.
- Print: prints the information currently displayed on the screen.

Help

If you need additional information about any item in the diagnostic program, press [F1] to display the help screen. Use the [PgDn] and [PgUp] keys or the arrow keys to scroll through the help screens.

Tab to the <Index> command button and press [Enter] to see the list of help screens included in the program.

The on-line help also describes the different parts of the dialog boxes. The Test Setup dialog box is shown in Figure A-2.

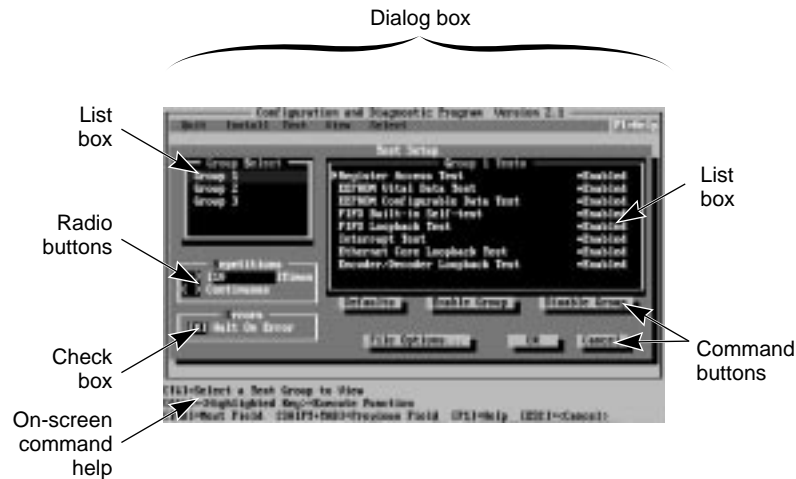


Figure A-2. Sample Dialog Box

To print the help file, first exit the program. At the DOS prompt, enter the print command applicable to your system software. For example type:

```
TYPE 3C5X9ENG.HLP> PRN: [Enter]
```

Exiting the Program

To exit a dialog box, press [Esc]. To exit the program, choose Exit from the Quit menu or press [F3].

Using the Command Line

There are two ways to configure and test the 3C529 adapter:

- Automatically, from the menu program, by selecting the options in the Configuration and Diagnostic submenu.

Typing 3C5X9CFG without a keyword or parameter invokes the program in full windows mode, including both mouse support and context-sensitive help. Press [F1] for on-line help at any time.

- Manually, from the root directory of the *EtherDisk* diskette, by typing:

```
3C5X9CFG [command keyword] [parameter list]
```

where 3C5X9CFG represents the Configuration and Diagnostic Program name. Command keywords and parameters shown in brackets are optional.

Table A-3 is a brief list of the command keywords and their definition. If you type a command keyword, each command has parameters that you need to specify.

A-8 Using the Configuration and Diagnostic Program

To configure and test the 3C529 adapter from the command line, follow these steps:

1. **Exit the Configuration and Diagnostic Program.**
2. **At the system prompt for the drive containing the Configuration and Diagnostic Program, type:**

```
3C5X9CFG [command keyword] [parameter list]
```

You can get help information for specific commands such as RUN by typing HELP, then the command. For example, at the system prompt for the drive containing the Configuration and Diagnostic Program, type the following and press [Enter]:

```
3C5X9CFG HELP RUN
```



NOTE: *If this computer is an operating server, notify all users of the server to save their work and log out from the network. The Configuration and Diagnostic Program disrupts the normal operation of servers and workstations, so work that is not saved may be lost.*

To avoid interference from other running programs, power down the server, and reboot with a DOS-only diskette.

Command Line Keywords

You can use the first two characters of any command or parameter as a shortcut. For example, 3C5X9CFG HE RU means 3C5X9CFG HELP RUN. The command keywords and parameters are not case-sensitive. A more detailed description of these parameters is contained in the on-line help file.

Table A-3. Command Line Keywords

| Command Keyword | Definition |
|------------------------|--|
| CONFIGURE | Configures an adapter in one of three ways: (1) automatically, using the /AUTO parameter, (2) specifying an adapter configuration file, or (3) using command line parameters. |
| ECHOSERVER | Enables a designated adapter to function within the echo server. |
| HELP | Displays general or command-specific help information. To get command-specific help, enter: 3C5X9CFG HELP [command keyword] |
| LANGUAGE | Provides support for multiple languages in full windows mode via a different resource file for each language supported. |
| LIST | Displays a list of installed adapters recognized by this program and their assigned adapter numbers. |
| RUN | Executes the diagnostic tests, which can also be specified from a file, on a selected adapter and writes the results to the screen, a file, or a printer. |

Appendix B

Specifications

Listed below are the specifications for the 3C529 and 3C529-TP adapters.

Network Interface

| | |
|-------------------|---|
| 3C529 adapter: | Ethernet IEEE 802.3 industry standard for a 10 Mbps baseband CSMA/CD local area network |
| 3C529-TP adapter: | IEEE 802.3i 10BASE-T industry standard for a 10 Mbps CSMA/CD local area network |

Physical Dimensions

| | |
|---------|--------------|
| Length: | 3.475 inches |
| Width: | 7.500 inches |

Environmental Operating Range

| | |
|------------------------|-----------------------------|
| Operating temperature: | 0° to 70° C (32° to 158° F) |
| Humidity: | 10 to 90% noncondensing |

Power Requirements

| | |
|--------------------|---|
| Operating voltage: | +5 V \pm 10% @ 0.5 A max (coax) +12 V \pm 10% @ 400 mA max |
|--------------------|---|

Mean Time Between Failures (hours calculated)

| | |
|-------------------|----------------|
| 3C529 adapter: | MTBF = 200,000 |
| 3C529-TP adapter: | MTBF = 200,000 |

B-2 Specifications

Cable Requirements

To remain compliant with the limits of a Class B digital device, 3Com requires that you use quality interface cables when connecting to these devices. Changes or modifications not expressly approved by 3Com could void the user's authority to operate this equipment.

Suggested cable types are:

- Thin Ethernet (50 ohm) for BNC connections:
3C530-xxx or equivalent
- Thick Ethernet (50 ohm) for AUI connections:
3C120-xxx
- Unshielded twisted-pair (100-ohm nominal):
 - Level 3 LAN and high speed data cable. For example, Anixter® CM-00424BAG-3 or equivalent.
 - Level 4 extended distance LAN cable. For example, Anixter CM-00424BAG-4 or equivalent.

Appendix C

Error Messages

This appendix lists in alphabetical order the *EtherDisk* diskette on-line error messages. The text of each error message suggests possible causes of the error condition and gives the appropriate remedy in most cases. If error conditions persist, refer to Chapter 6, "Troubleshooting."

A diagnostic test name was found in the configuration file at line x. Only configuration parameter variables are allowed.

A network driver is installed. Start the computer with a standard DOS diskette with no network drivers or TSRs, and run the Configuration and Diagnostic Program again.

A syntax error was found in the configuration file at line x.

Adapter failed during Echo Exchange test. Try the test again. If the failure persists, swap with a known good EtherLink III, and try again.

Adapter failed while transmitting the request to locate the echo server. This problem can be caused by either a cabling problem or an adapter failure.

Adapter failed while trying to read the adapter configuration stored on the adapter. Save a new configuration on the adapter. If the problem persists, swap with a known good EtherLink III, and try again.

C-2 Error Messages

Either there is no boot PROM installed on the adapter or the selected boot PROM base address is being used by another device or software program installed by the computer. Do you want to save the configuration anyway?

The adapter's I/O base address, interrupt request level, and transceiver type have been successfully selected with Auto Configure. For your new settings to take effect, save the settings, exit, and reboot the computer.

The ConfigPort value *xxxxx* on the command line is not supported. Valid settings are 100–1E0, in increments of 10. Please try again.

The selected EtherLink III can only be configured while in test mode. The diagnostic tests cannot be run from this mode.

The selected interrupt request level is being used by another device installed in the computer. Do you want to save the configuration anyway?

The selected I/O base address is being used by another device installed in the computer. Do you want to save the configuration anyway?

The value *xxxxx* at line *x* in the configuration file is not supported. Check the EtherLink III Adapter Guide for supported option settings.

The value *xxxxx* on the command line is not supported. Check the EtherLink III Adapter Guide for supported option settings.

There is only one transceiver on the board. This selection cannot be changed.

Unable to configure boot PROM base address at line *x* in the configuration file. The boot PROM is disabled.

Unable to configure boot PROM base address. The boot PROM is disabled.

Unable to configure Link Beat at line *x* in the configuration file. The on-board TP transceiver must be selected to configure this option.

Unable to configure Link Beat. The on-board TP transceiver must be selected to configure this option.

Unable to locate an unused interrupt request level. Try starting the computer from a standard DOS diskette with no drivers or TSRs, and run the Configuration and Diagnostic Program again.

Unable to locate an unused I/O base address. Try the following:

- 1. Boot the computer from a standard DOS diskette with no drivers or TSRs.**
- 2. Re-seat the EtherLink III into the slot.**
- 3. Don't use PC Turbo for Fast mode.**

Unable to locate the echo server. The request to locate has timed out. Make sure you have set up a second 3Com node as an echo server, and it is set up properly.

C-4 Error Messages

Unable to recognize value *xxxxx* on the command line. Please change to a valid setting.

Unable to recognize variable value *xxxxx* at line *x* in the configuration file. Please change to a supported variable.

Unable to recognize variable value *xxxxx* at line *x* in the configuration file. Please change to a valid setting.

Use a later version of the Configuration and Diagnostic Program to take advantage of all the features on this adapter. Please obtain the latest version from your 3Com supplier.

You are about to exit, but your new adapter configuration has not been saved. Do you want to exit without saving?

You must use a later version of the Configuration and Diagnostic Program with this adapter. Please obtain the latest version from your 3Com supplier.

Appendix D

Technical Support

This appendix explains how to obtain worldwide support for 3Com adapters and software.

On-line Product Support

3Com offers worldwide product support 24 hours a day, seven days a week, through automated on-line systems.

CardBoardSM Bulletin Board Service

CardBoard is 3Com's menu-driven bulletin board service. It contains the most current adapter information in downloadable files. CardBoard provides:

- Software drivers
- Technical tips
- Product information
- Diagnostic programs
- Software patches and fixes

These files are easy to access through a modem connection set at 8 data bits, no parity, 1 stop bit. Call the CardBoard telephone number nearest you:

| | | |
|-----------|-----------------------|-------------------|
| Australia | (61) (2) 955 2073 | – up to 2400 baud |
| France | (33) (1) 69 86 69 54 | – up to 9600 baud |
| Germany | (49) 89 62732-188/189 | – up to 9600 baud |
| Italy | (39) (2) 27 30 06 80 | – up to 9600 baud |
| Japan | (81) (3) 3243 9245 | – up to 9600 baud |
| Singapore | (65) 543 5693 | – up to 9600 baud |

Taiwan (886) (2) 5776160 – up to 14400 baud
U.K. (44) (44) 2 278278 – up to 14400 baud
U.S. (1) (408) 980-8204 – up to 14400 baud

For information on international CardBoard access numbers added since this manual was published, contact your local 3Com office. Refer to the list of international sales offices later in this appendix.

3ComFactsSM Automated Fax Service

3Com's interactive fax service, 3ComFacts, provides data sheets, technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, seven days a week. Within this service you may choose to access CardFactsSM for adapter information or NetFactsSM for network system product information.

- **CardFacts** provides adapter installation diagrams, configuration drawings, troubleshooting instructions, and technical articles. Document 9999 provides you with an index of adapter documents.
- **NetFacts** provides data sheets and technical articles on 3Com's hub, bridge, router, terminal server, and software products. Document 8888 provides you with an index of system product documents.

Call 3ComFacts using your touch-tone telephone.
International calling numbers are:

U.K. (44) (44) 227 8279
U.S. (1) (408) 727 7021

Local access to 3Com's fax system is available within the following countries using the numbers listed below:

| | |
|-------------|---------------|
| Denmark | 800 17319 |
| Finland | 98 001 4444 |
| France | 05 90 81 58 |
| Germany | 0130 81 80 63 |
| Italy | 1678 99085 |
| Netherlands | 06 0228049 |
| Norway | 05 01 1062 |
| Sweden | 020 792954 |
| U.K. | 0800 626403 |

Ask3ComSM On-line Service

Ask3Com is an on-line service, located on CompuServeSM. This service is accessible worldwide. Ask3Com contains extensive technical and marketing information on all 3Com products. To use Ask3Com, you must first obtain a CompuServe account. To open an account, contact your local CompuServe office.

To use Ask3Com, log into CompuServe, type:

GO THREECOM

and press [Enter] to see the Ask3Com main menu.

3Com Documentation on CD-ROM

An extensive library of 3Com product documentation is available in CD-ROM format through Support on Site™ for Networks subscription service. This multivendor CD-ROM service, offered by Computer Library™, a division of Ziff Communications Company, contains technical information and documentation from major data networking hardware and software manufacturers. Stand-alone and concurrent user network subscriptions are available. To order, call Computer Library at (800) 827-7889, extension 515. Outside the U.S. call (212) 503-4400 or use fax number (212) 503-4487.

Support from Your Network Supplier

If additional assistance is required, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

U.S. and Canada

Call the following number to locate your local 3Com sales office:

U.S. (1) (800) NET-3Com

The 3Com sales office will refer you to the nearest 3Com authorized service partner.

Outside the U.S. and Canada

To locate a 3Com authorized service partner near you, contact your local 3Com sales office.

| | |
|---------------------|------------------|
| Australia | (61) 2 959 3020 |
| Belgium/Netherlands | (31) 3402 55033 |
| Brazil | 55 11 530 2318 |
| France | (33) 1 698 66800 |
| Germany | (49) 89 627320 |
| Hong Kong | (852) 868 9111 |
| Italy | (39) 22 7302041 |
| Japan | (81) 3 3243-9234 |
| Mexico | 525 531 0591 |
| Middle East | 971 4 317173 |
| Nordic | (46) 8 703 4870 |
| Singapore | (65) 538 9368 |
| Taiwan | (886) 2 577 4352 |
| U.K. | (44) 628 890 670 |

When you contact a 3Com authorized service partner for assistance, have the following information ready:

- Diagnostic error messages
- A list of system hardware and software, including revision levels
- Detail on recent configuration changes, if applicable

3Com's service partner will determine what action needs to be taken to resolve the problem. 3Com service partners can verify hardware failures and advise you when it is more cost-effective to replace, rather than repair, a product.

Returning Products for Repair

A product sent directly to 3Com for repair must first be assigned a Return Materials Authorization number (RMA). A product sent to 3Com without an RMA number will be returned to the sender unopened, at the sender's expense.

When you call for an RMA number, be prepared to provide the product name, serial number, and diagnostic error messages. Payment, shipping instructions, and turnaround time will be confirmed when the RMA number is assigned.

To obtain an RMA number, call or fax:

| | | |
|--------|--------------|--------------------|
| Europe | <i>Phone</i> | (44) (44) 2 278000 |
| | <i>Fax</i> | (44) (44) 2 236824 |

| | | |
|------|--------------|--------------------------------|
| U.S. | <i>Phone</i> | (800) 876-3266, press option 2 |
| | <i>Fax</i> | (408) 764-7290 |

Outside Europe and the U.S.

| | | |
|--|--------------|----------------|
| | <i>Phone</i> | (408) 492-1790 |
| | <i>Fax</i> | (408) 764-7290 |



NOTE: RMA forms (except Europe) are available on CardFacts. Dial (408) 727-7021, request document 9014.

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