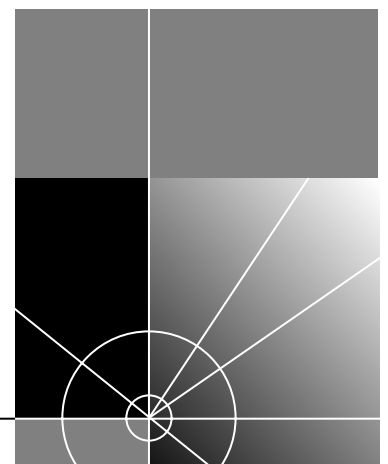




# Installing the NETBuilder II<sup>®</sup> FDDILink<sup>™</sup> Module

<http://www.3com.com/>

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**3Com Corporation**  
**5400 Bayfront Plaza**  
**Santa Clara, California**  
**95052-8145**

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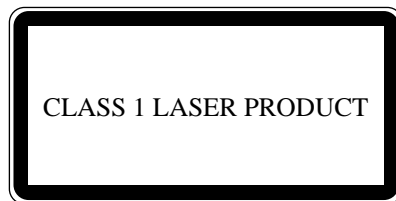
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**Single-mode FDDLInk Module Laser Safety**

**USA and International**



**LASERKLASSE 1**  
**LASER CLASSE 1**  
**LASER PRODUCTO CLASE 1**

The NETBuilder II single-mode FDDLInk modules are certified Class 1 laser safe.

Class 1 defined by the U.S. Department of Health and Human Services 21 CFR 1040.10 and 1040.11.

The single-mode FDDLInk modules employ laser components for which the laser emissions are continuously monitored and adjusted by internal electro-optic circuits.

User adjustments are not provided and maintenance is not needed.

Optical instruments should not be used to view the laser output.



**WARNING:** The use of optical instruments may cause eye hazard.

**ATTENTION:** L'utilisation d'instruments optiques peut être dangereuse pour les yeux.

**ACHTUNG:** Die Verwendung von optischen Instrumenten kann eine Gefahr für die Augen bergen.

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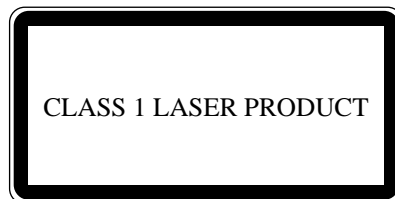
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**Single-mode FDDLlink Module Laser Safety**

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User adjustments are not provided and maintenance is not needed.

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## 3COM CORPORATION LIMITED WARRANTY



# ABOUT THIS GUIDE

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## Introduction

This guide describes how to install, cable, and troubleshoot the FDDILink™ module for the NETBuilder II® system. The FDDILink module comes in single-mode, multimode, and mixed- (single- and multi-) mode versions. The information in this guide applies to all NETBuilder II chassis.

### *Audience Description*

This guide is intended for the system administrator, network equipment installer, or network manager who is responsible for installing and managing the network hardware. It assumes a working knowledge of network operations, but it does not assume prior knowledge of 3Com® internetworking equipment.



*If the information in the release notes shipped with your product differs from the information in this guide, follow the release notes.*

---

## Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

**Table 1** Notice Icons

Icon	Notice Type	Alerts you to...
	Information note	Important features or instructions
	Caution	Risk of personal safety, system damage, or loss of data
	Warning	Risk of severe personal injury

**Table 2** Text Conventions

Convention	Description
Syntax	The word "syntax" means you must evaluate the syntax provided and supply the appropriate values. Placeholders for values you must supply appear in angle brackets. Example:  Enable RIPIP using: <code>SETDefault !&lt;port&gt; -RIPIP CONTROL = Listen</code> In this example, you must supply a port number for <port>.
Commands	The word "command" means you must enter the command exactly as shown in text and press the Return or Enter key. Example:  To remove the IP address, enter: <code>SETDefault !0 -IP NETaddr = 0.0.0.0</code>  <i>This guide always gives the full form of a command in uppercase and lowercase letters. However, you can abbreviate commands by entering only the uppercase letters and the appropriate value. Commands are not case-sensitive.</i>

---

(continued)

**Table 2** Text Conventions (continued)

<b>Convention</b>	<b>Description</b>
Screen displays	This typeface represents information as it appears on the screen.
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says "type."
[Key] names	Key names appear in text in one of two ways: <ul style="list-style-type: none"><li>■ Referred to by their labels, such as "the Return key" or "the Escape key"</li><li>■ Written with brackets, such as [Return] or [Esc].</li></ul> If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press [Ctrl]+[Alt]+[Del].
Words in <b>bold-face</b> type	Bold text denotes key features.

# 1

## INSTALLATION

The NETBuilder II FDDILink Module is an extended-format module that occupies two slots in the NETBuilder II 4-Slot or 8-Slot chassis and one slot in the 8-Slot Extended chassis. The module comes in single-mode, multimode, and mixed- (single- and multi-) mode versions.

This chapter describes how to install the FDDILink module into the NETBuilder II bridge/router and includes the following procedures and information:

- Software compatibility
- Hardware requirements
- Preparing for installation
- Installing the module in a NETBuilder II 4- or 8-Slot chassis
- Installing the module in a NETBuilder II 8-Slot Extended chassis
- Cabling the module

For information about module features, refer to Chapter 2.

---

### Software Compatibility

All versions of the FDDILink module require version 9.3 or later of the NETBuilder software. The module is not backward compatible and does not support network boot or network dump procedures.

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### Hardware Requirements

Use the information in this section to determine if your chassis will accommodate the FDDILink module.

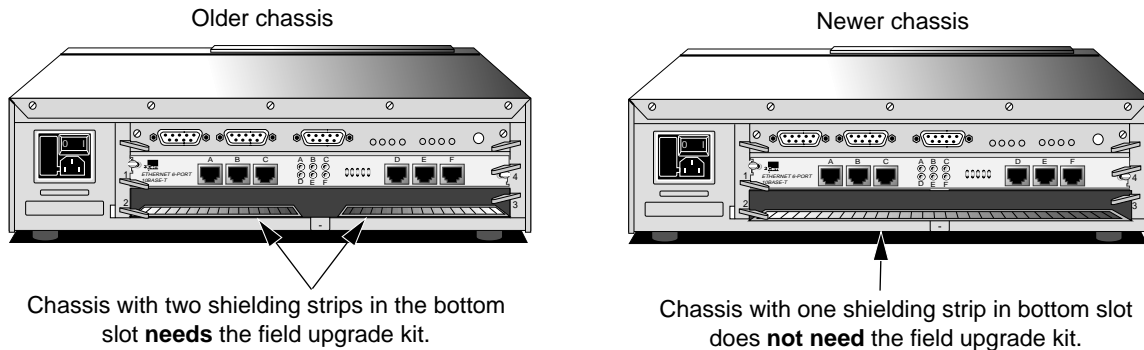
The newer 4-Slot chassis (assembly part number 20-0250-xxx or 20-0406-xxx), 8-Slot chassis (assembly part number 20-0249-xxx or 20-0407-xxx) or any chassis labeled "EZBuilt" have one ejector tab for each module slot. The CEC module slot, however, has two ejector tabs on all chassis. These new chassis have a removable center column that allows for the installation of extended-format modules, such as the FDDILink module.

The original 4-Slot and 8-Slot chassis do not have a removable center divider between the slots and cannot accommodate extended-format modules. Original 4-Slot and 8-Slot chassis have two ejector tabs for each module.

If your chassis does not have a removable center divider, but is still an older model (product number 20-0250-xxx or 20-0244-xxx), you need a field upgrade kit. To install FDDILink modules into the bottom slot of an original 4-Slot or 8-Slot chassis, you need to install EMI spring clips to ensure continued compliance with emissions requirements. If your chassis does not already have clips, contact your 3Com service organization to obtain spring clips and



installation instructions (or field upgrade kit). Figure 1-1 will help you determine if your chassis requires a field upgrade kit to install an extended-format module into the bottom slot. The illustration shows the 4-Slot chassis but is also applies to the 8-Slot chassis. Chassis with two separate shielding strips in the bottom slot require the upgrade kit to install the FDDILink module; chassis with one shielding strip do not.



**Figure 1-1** Determining the Need for a Field Upgrade Kit

## Preparing for Installation

To prepare to install an FDDILink module into the NETBuilder II system, follow these steps:



**CAUTION:** Take great care to keep the transceivers clean and dust free. Do not remove the plastic protectors from the board or the end caps from the cable until you are ready to connect. Immediately install protectors and end caps after disconnecting.

### 1 Observe appropriate electrostatic discharge (ESD) precautions.

ESD can damage circuit board components. Failures resulting from ESD may not be covered under your warranty. To prevent ESD:

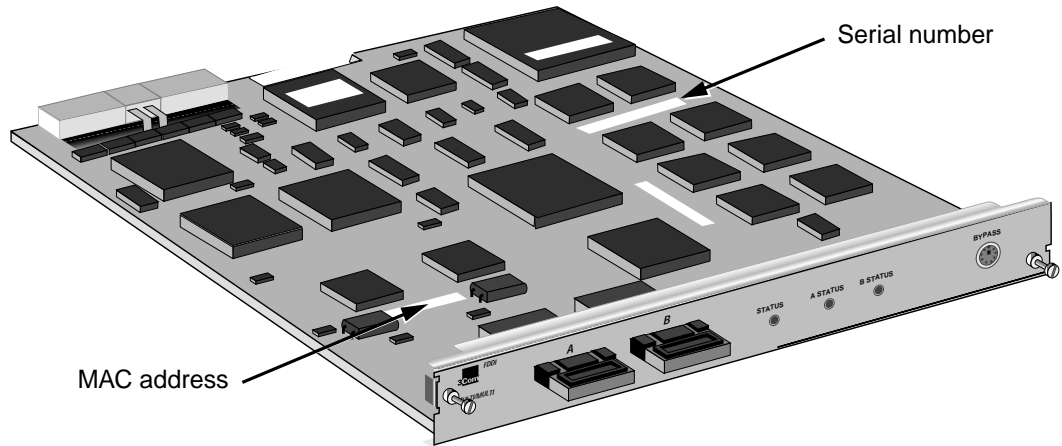
- Keep the module in its antistatic shielded bag until you are ready to install it.
- Keep the optical transceivers in place until connecting a cable.
- Do not touch pins, leads, or solder connections on the board.
- Handle the board by the edges only.
- Store or ship the module in static-protective packaging.

Observe proper grounding techniques when handling the module: Use a foot strap and grounded mat, or wear a grounded static discharge wrist strap.

### 2 Inspect the module for shipping damage.

If you find any damage, contact the shipping company to file a report. If the module must be returned to your network supplier, ship it in its original shipping carton. If the original carton was damaged in shipment, repack the system in a carton that provides equivalent protection.

- Write down the serial number and the MAC address from the labels on the module. You will need this information if you have to contact your network supplier.



**Figure 1-2** FDDILink Module

Serial number example: S/N: 4FZE123456

MAC address example: 080002 1A4B5C

The MAC address is also encoded in the module EEPROM.

### Installing the Module in a 4-Slot or 8-Slot Chassis

When you install any extended-format module into the NETBuilder II 4-Slot or 8-Slot chassis, you must start with the first slot after the CEC module slot and work down. If the first slot is occupied, move its contents to other slots and install the FDDILink module into the now vacant slot.

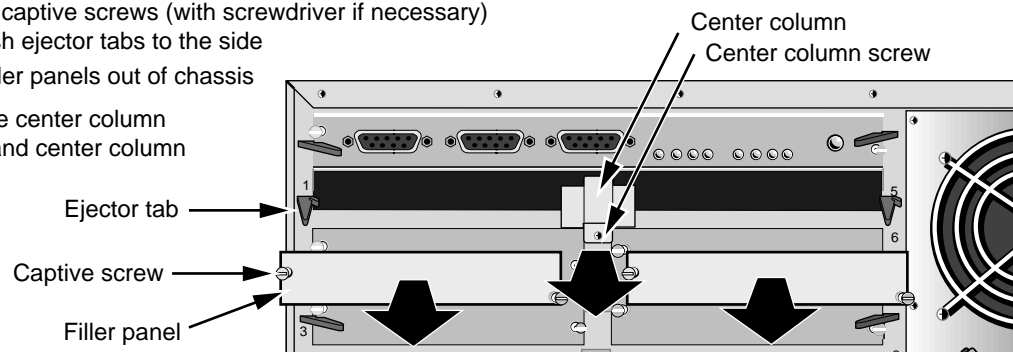
To install the module into the NETBuilder II 4-Slot or 8-Slot chassis, follow these steps:

- You will need small flat-blade screwdriver.
- You can safely install a module without turning off or rebooting the NETBuilder II bridge/router. This is known as "hot-swap" capability.

- Remove the filler panel from the top slot.

If the cable strain relief bracket that came with your chassis is already installed, remove it also.

- Loosen captive screws (with screwdriver if necessary) and push ejector tabs to the side
- Slide filler panels out of chassis
- Remove center column screw and center column

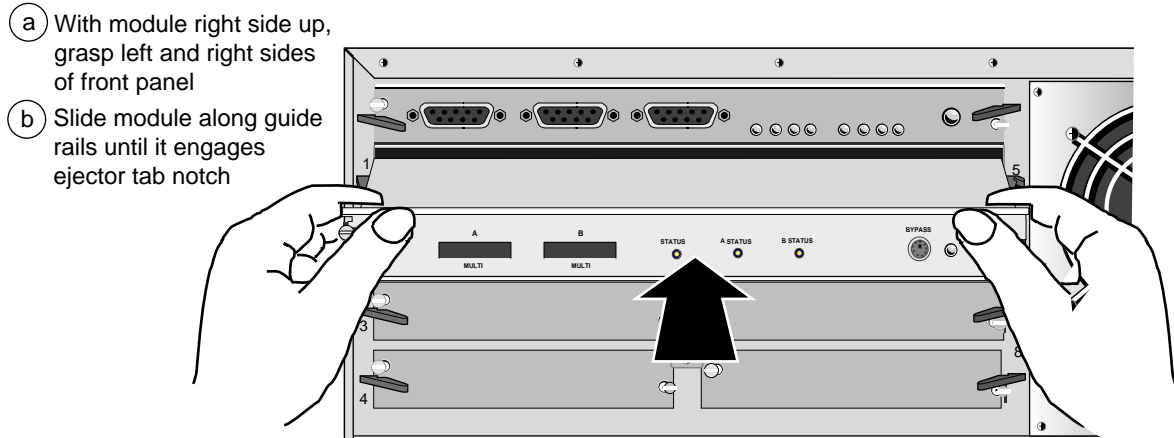


**Figure 1-3** Remove filler panel.



**CAUTION:** Only remove the filler panels from the slots that will house the FDDILink module. All unused slots require filler panels to maintain proper cooling of the unit and regulatory compliance. Failure to cover open slots can cause the NETBuilder II bridge/router to overheat, which will void the warranty.

- 2 Slide the FDDILink module into the top slot.



**Figure 1-4** Insert module into chassis

- 3 Engage the ejector tabs and secure the module in the slot.

Do not use optical instruments to view laser output of the single- and mixed-mode FDDILink modules.



**WARNING:** The use of optical instruments may cause eye hazard.

**ATTENTION:** *L'utilisation d'instruments optiques peut être dangereuse pour les yeux.*

**ACHTUNG:** *Die Verwendung von optischen Instrumenten kann eine Gefahr für die Augen bergen.*

**ADVERTENCIA:** *El uso de instrumentos ópticos puede ser peligroso para los ojos.*

- 4 Tighten the captive screws.

A solid connection of the front panel to the chassis is required for proper operation. Do not use the screws to force the board into place.

Refer to "Cabling the Module" on page 1-6 to cable your FDDILink module.

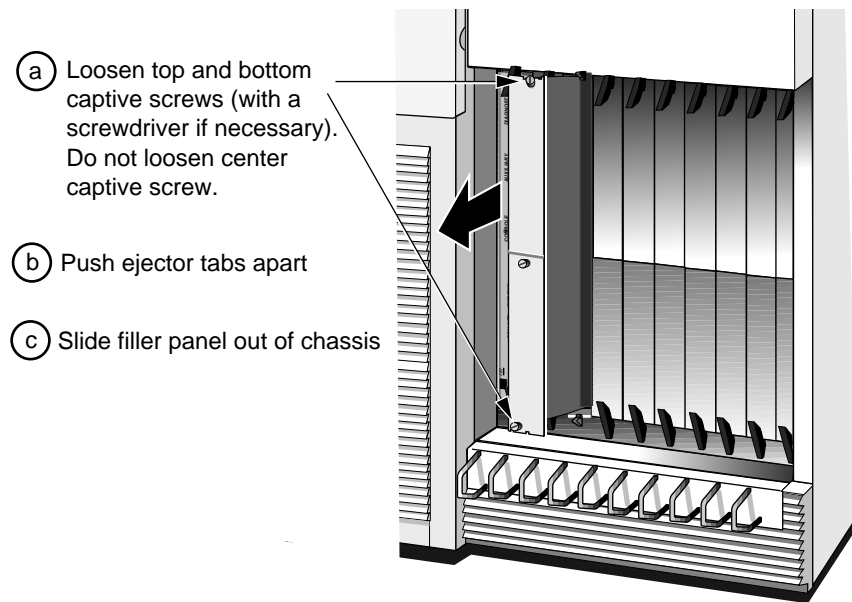
## Installing the Module in a 8-Slot Extended Chassis

To install the module into the NETBuilder II 8-Slot Extended chassis, follow these steps:

- You will need a small flat-blade screwdriver.
- You can safely install a module without turning off or rebooting the NETBuilder II bridge/router.

- 1 Remove the filler panel from the slot you have selected.

If the cable strain relief bracket that came with your chassis is already installed, remove it also.



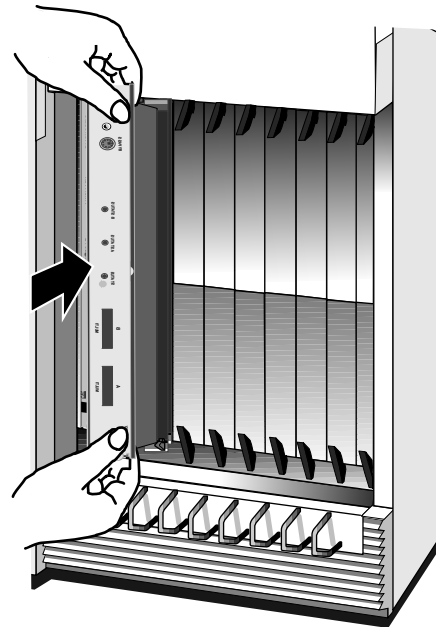
**Figure 1-5** Removing a filler panel from an extended chassis



**CAUTION:** Remove only the filler panel from the slot that will house the FDDILink module. All unused slots must be covered by filler panels to maintain proper cooling of the unit and meet regulatory compliance. Failure to cover open slots can cause the NETBuilder II bridge/router to overheat which will void the warranty.

2 Slide the FDDILink module into the slot.

- (a) Grasp left and right sides of front panel and turn module vertically so the 3Com logo is on the bottom
- (b) Slide module along guide rails until it engages the ejector tab notches
- (c) Finger tighten screws and then gently tighten with a small (1/8" - 3/16") screwdriver



**Figure 1-6** Inserting an FDDILink module into an extended chassis

- 3 Engage the ejector tabs and secure the module in the slot.
- 4 Tighten the captive screws.

A solid connection of the front panel to the chassis is required for proper operation. Do not use the screws to force the board into place.

## Cabling the Module

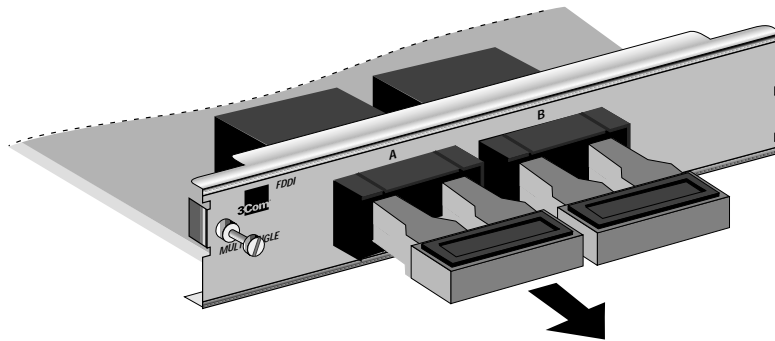
To cable and connect the FDDILink module, follow these steps:

- 1 Remove the plastic protectors from the transceiver connectors on the module.

If you are only using one connector, leave the protector on the unused connector.

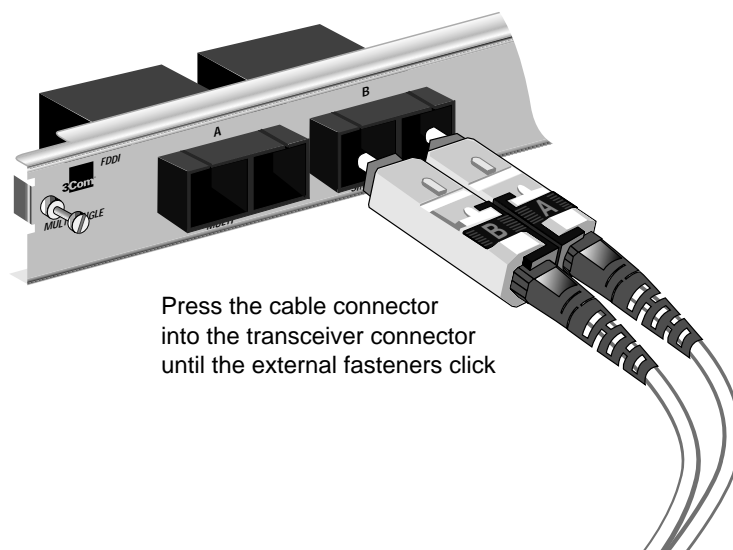


**CAUTION:** Take great care to keep the transceivers clean and dust free. Do not remove the plastic protectors from the board or the end caps from the cable until you are ready to connect. Immediately install protectors and end caps after disconnecting.



**Figure 1-7** Removing plastic protectors

- 2 Connect the appropriate network cable (not supplied) to the transceiver connector.
  - For the multimode transceiver, use multimode fiber of 62.5/125 $\mu\text{m}$  with SC connectors. An 11-db optical budget size allows cables up to 2 km long.
  - For the single-mode transceiver, use single-mode fiber of 9/125 $\mu\text{m}$  with an SC connector. An 11-db optical budget size allows cables up to 15 km long.



**Figure 1-8** Cabling the module



**CAUTION:** If keying pins were removed from the transceivers, it is possible to insert the cable connector upside down. Take care to avoid this.

# 2

## OVERVIEW OF THE FDDILINK MODULE

This chapter describes the features, specifications, and typical use of the FDDILink module for the NETBuilder II bridge/router.

### Module Features

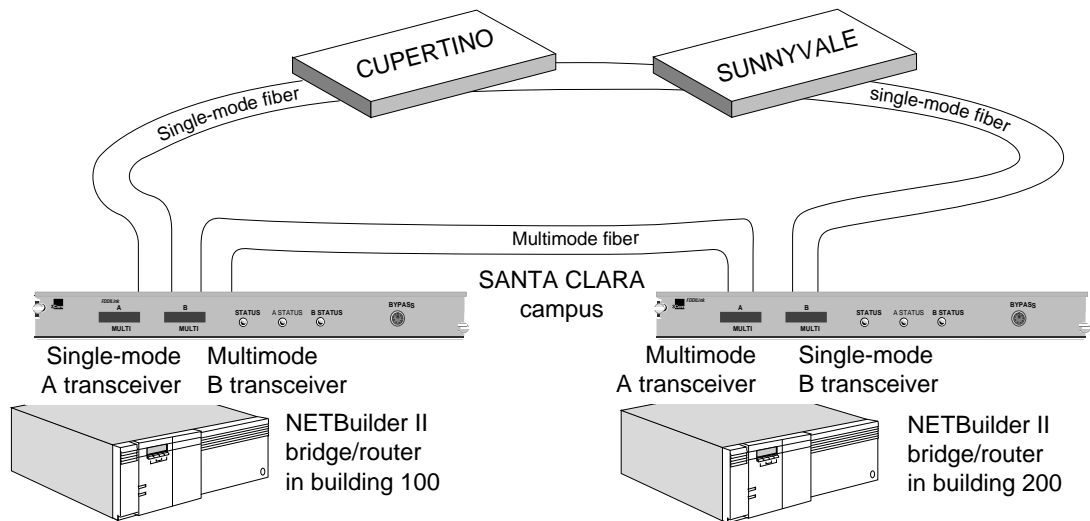
Table 2-1 summarizes the features of the FDDILink module.

**Table 2-1** FDDILink Module Features

Feature	Summary
Hot-swap capability	Allows you to install, or remove and reinstall, the module without turning of the NETBuilder II bridge/router.
<b>Compatibility</b>	
Multimode	Connects to any FDDILink network through SC connectors. Transceiver accepts 100 $\mu\text{m}$ 62.5 center core, multimode fiber with 62.5 $\mu\text{m}$ core and 125 $\mu\text{m}$ cladding.
Single-mode	Connects to any FDDILink network through SC connectors. Transceiver accepts 100 $\mu\text{m}$ 8.7 center core, single-mode fiber with 8.7 $\mu\text{m}$ core and 125 $\mu\text{m}$ cladding.
Connections	Single- or dual-attached capabilities.
Keying	Supports and accepts A, B, or S type ports for network connection.
<b>Cable support</b>	
Multimode	Accepts multimode duplex fiber of 62.5/125 $\mu\text{m}$ . An 11-db optical budget size allows cables up to 2 km long.
Single-mode	Accepts single-mode duplex fiber of 8.7/125 $\mu\text{m}$ . An 11-db optical budget size allows cables up to 15km long.
Flexible topology	Topology and capacity can be configured by setting conditions on the network external to the NETBuilder II base system. The capacity and topology of the FDDILink network is not fixed. Capacity is determined by a combination of cable lengths and connector capabilities.
Accessible information on the EEPROM	Provides FDDILink module product information that can be accessed via the monitor utility or user interface.
Interface speed	25 MHz.
Controller speed	12.5 MHz.
Clocks	25 MHz symbol clock rate. 12.5 MHz byte clock rate.
Laser safety	Single- and mixed-mode FDDILink modules are certified Class 1 laser safe.

## Typical Network Configuration

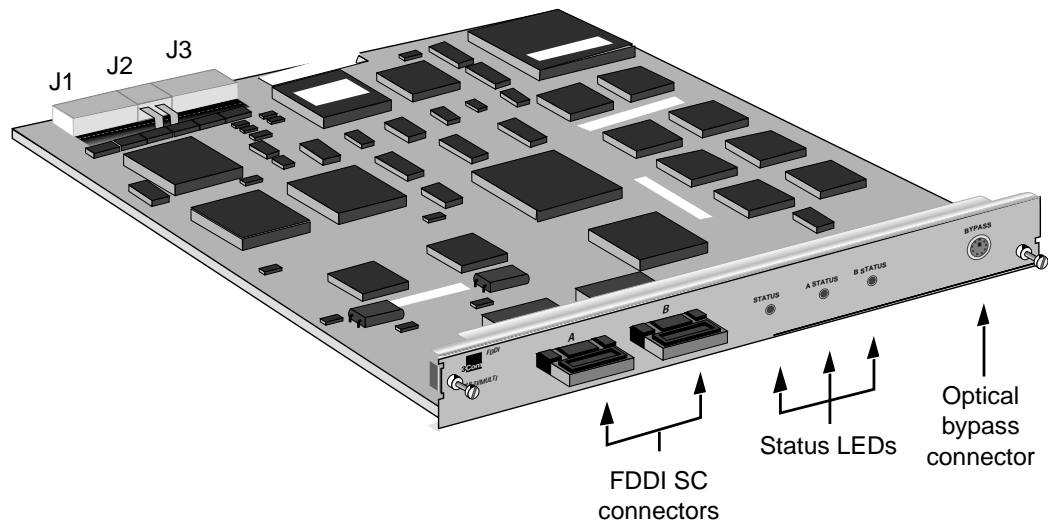
Figure 2-1 shows a typical use of a mixed-mode FDDILink module and the NETBuilder II bridge/router in a network.



**Figure 2-1** Typical Mixed-mode FDDILink Module and NETBuilder II Bridge/Router Network

## Module Components

This section describes the components of the FDDILink module (see Figure 2-2).



**Figure 2-2** FDDILink Module Components

### LEDs

The FDDILink module has three LEDs: One indicates the status of the whole FDDILink module and the other two indicate the status of the physical fiber connection to each transceiver. The A STATUS LED corresponds to the left transceiver, and the B STATUS LED corresponds to the right transceiver. Table 2-2 explains the LED states.

**Table 2-2** LED States

LED	Color	Indicates
STATUS	Off	No power to module
	Green	Normal Operation
	Yellow	Paths not enabled (may be caused by duplicate address on FDDI ring)
	Red	Fault or reset
A STATUS	Green	Normal Operation
	Yellow	Self-test or stand-by mode (stand-by mode occurs if Transceiver B is connected to a concentrator master port)
	Red	Fault or reset
B STATUS	Green	Normal Operation
	Yellow	Self-test
	Red	Fault or reset

### FDDILink Module Connectors

Table 2-3 describes the FDDILink module connectors.

**Table 2-3** FDDILink Module Connectors

Location	Connector(s)	No. of Pins	Purpose
Backplane connector	J1 and J3	48-pin	Connects module to the core bus.
	J2	8-pin	Power connector.
Front panel	Optical bypass connector	6-pin	Allows the network to continue in primary and secondary mode even if the NETBuilder II bridge/router is turned off. Disabled in the single- and mixed-mode FDDILink modules.
Front panel	Two FDDI SC connectors	2-pin	Connects module to fiber with an SC connector.

### Specifications

Table 2-4 lists the physical dimensions of the module, and Table 2-5 lists the current consumption.

**Table 2-4** Physical Dimensions

Attribute	Description
Length	9.3 in (22.3 cm)
Width	10.8 in (27.4 cm)
Height	0.6 in (1.5cm)
Weight	1.2 lbs (0.54 kg)

**Table 2-5** Maximum Current Consumption

+5 Volts	+12 Volts	-12 Volts
3.8 amp	0.1 amp	0.2 amp





# 3

## TROUBLESHOOTING AND REPLACING THE MODULE

This chapter describes how to troubleshoot and replace the FDDILink module.

### Troubleshooting

Table 3-1 describes common malfunctions that can occur with the module, possible causes, and actions to take. If you are unable to resolve a problem, contact your network supplier. Refer to Appendix A for information about who to contact in your area.

**Table 3-1** Troubleshooting the FDDILink Module

Symptom	Cause and Action
<p>The following message is displayed at start-up:</p> <pre>FDDI Interface: Self Tests failed - slot X</pre> <p>(The value of X can be 1 through 4 or 1 through 8, depending on whether you have a 4- or an 8-Slot NETBuilder II chassis.)</p>	<p><i>Self-test failure</i></p> <ul style="list-style-type: none"> <li>■ Check to see if the module is inserted completely into the NETBuilder II chassis.</li> <li>■ Make sure there are no bent pins on the NETBuilder II backplane.</li> </ul> <p>If you still have a self-test failure, contact your network supplier.</p>
<p>The STATUS LED is off when there is power to the system and other installed modules are operating.</p>	<p><i>Disabled module</i></p> <p>The module may not be properly connected to the NETBuilder II backplane. Remove and reinsert the module.</p> <p>If it is still not working, contact your network supplier.</p>
<p>The STATUS LED is red.</p>	<p><i>Error condition</i></p> <ul style="list-style-type: none"> <li>■ Check that all cable connections are intact.</li> <li>■ Check that the NETBuilder II bridge/router is operating correctly.</li> <li>■ Check that the network you are connected to is operating correctly.</li> <li>■ Check that the connected serial device is operating correctly.</li> <li>■ With a single-fiber module, connect port A to port B. If the LED goes green, the module is probably not faulty.</li> </ul> <p>If none of these actions solve the problem, replace the module and/or contact your network supplier for assistance.</p>

### Replacing the Module

If any component in the module fails, you must replace the module.

To remove and replace the module, follow these steps:

- You will need a flat-blade screwdriver.
  - You can safely install a module without turning off or rebooting the NETBuilder II bridge/router.
- 1 Disconnect any network cabling from the FDDILink module.

Do not use optical instruments to view laser output of the single- and mixed-mode FDDILink modules.



**WARNING:** The use of optical instruments may cause eye hazard.

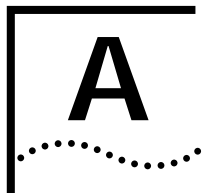
**ATTENTION:** *L'utilisation d'instruments optiques peut être dangereuse pour les yeux.*

**ACHTUNG:** *Die Verwendung von optischen Instrumenten kann eine Gefahr für die Augen bergen.*

**ADVERTENCIA:** *El uso de instrumentos ópticos puede ser peligroso para los ojos.*

- 2 Use the screwdriver to unscrew the two captive screws that anchor the module in the slot until they disengage from the chassis. Do not remove the screws from the front panel.
- 3 Push the tab outward from the FDDILink module.  
The module disengages from the NETBuilder II backplane and partially ejects from the slot.
- 4 Use both hands to grasp the module and gently pull it from the slot.

Install the new module using the procedure in Chapter 1.



# TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

Information contained in this appendix is correct at time of publication. For the very latest, we recommend that you access 3Com Corporation's World Wide Web site as described below.

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## Online Technical Services

3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:

- World Wide Web site
- 3Com Bulletin Board Service (3ComBBS)
- 3ComFacts<sup>SM</sup> automated fax service
- 3ComForum on CompuServe<sup>®</sup> online service

## World Wide Web Site

Access the latest networking information on 3Com Corporation's World Wide Web site by entering our URL into your Internet browser:

<http://www.3Com.com/>

This service features the latest information about 3Com solutions and technologies, customer service and support, news about the company, *NetAge*<sup>®</sup> Magazine, and more.

## 3Com Bulletin Board Service

3ComBBS contains patches, software, and drivers for all 3Com products, as well as technical articles. This service is available through analog modem or digital modem (ISDN) 24 hours a day, 7 days a week.

### Access by Analog Modem

To reach the service by modem, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Data Rate	Telephone Number
Australia	up to 14400 bps	61 2 9955 2073
Brazil	up to 14400 bps	55 11 547 9666
France	up to 14400 bps	33 1 6986 6954
Germany	up to 28800 bps	4989 62732 188
Hong Kong	up to 14400 bps	852 2537 5608
Italy (fee required)	up to 14400 bps	39 2 27300680
Japan	up to 14400 bps	81 3 3345 7266

(continued)

Country	Data Rate	Telephone Number
Mexico	up to 28800 bps	52 5 520 7853
P. R. of China	up to 14400 bps	86 10 684 92351
Singapore	up to 14400 bps	65 534 5693
Taiwan	up to 14400 bps	886 2 377 5840
U.K.	up to 28800 bps	44 1442 438278
U.S.A.	up to 28800 bps	1 408 980 8204

### Access by Digital Modem

ISDN users can dial in to 3ComBBS using a digital modem for fast access up to 56 Kbps. To access 3ComBBS using ISDN, use the following number:

**408 654 2703**

### 3ComFacts Automated Fax Service

3Com Corporation's interactive fax service, 3ComFacts, provides data sheets, technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, 7 days a week.

Call 3ComFacts using your Touch-Tone telephone using one of these international access numbers:

Country	Telephone Number
Hong Kong	852 2537 5610
U.K.	44 1442 438279
U.S.A.	1 408 727 7021

Local access numbers are available within the following countries:

Country	Telephone Number	Country	Telephone Number
Australia	1800 678 515	Netherlands	06 0228049
Belgium	0800 71279	New Zealand	0800 446 398
Denmark	800 17319	Norway	800 11062
Finland	98 001 4444	Portugal	0505 442 607
France	05 90 81 58	Russia (Moscow only)	956 0815
Germany	0130 81 80 63	Singapore	800 6161 463
Hong Kong	800 933 486	Spain	900 964 445
Italy	1678 99085	Sweden	020 792954
Malaysia	1800 801 777	U.K.	0800 626403

### 3ComForum on CompuServe Online Service

3ComForum is a CompuServe-based service containing patches, software, drivers, and technical articles about all 3Com products, as well as a messaging section for peer support. To use 3ComForum, you need a CompuServe account.

To use 3ComForum:

- 1 Log on to CompuServe.
- 2 Type **go threecom**
- 3 Press [Return] to see the 3ComForum main menu.

## 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.

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

- Diagnostic error messages
- A list of system hardware and software, including revision levels
- 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 receive support from your network supplier, technical support contracts are available from 3Com.

Contact your local 3Com sales office to find your authorized service provider using one of these numbers:

Regional Sales Office	Telephone Number	Regional Sales Office	Telephone Number
<b>3Com Corporation</b>		<b>3Com GmbH</b>	
P.O. Box 58145	800 NET 3Com or 1 408 764 5000	Austria	43 1 513 4323
5400 Bayfront Plaza	408 764 5001 (fax)	Czech Republic/Slovak Republic	420 2 21845 800
Santa Clara, California		Germany	49 30 34 98790 (Berlin)
95052-8145		(Central European HQ)	49 89 627320 (Munich)
U.S.A.		Hungary	36 1 250 83 41
		Poland	48 22 6451351
		Switzerland	41 31 996 14 14
<b>3Com Asia Limited</b>		<b>3Com Ireland</b>	
Australia	61 2 9937 5000 (Sydney)		353 1 820 7077
	61 3 9866 8022 (Melbourne)	<b>3Com Latin America</b>	
China	8610 68492568 (Beijing)	U.S. Headquarters	408 326 2093
	86 21 63740220 Ext 6115 (Shanghai)	Northern Latin America	305 261 3266 (Miami, Florida)
Hong Kong	852 2501 1111	Argentina	541 312 3266
India	91 11 644 3974	Brazil	55 11 546 0869
Indonesia	6221 572 2088	Chile	562 633 9242
Japan	81 6 536 3303 (Osaka)	Colombia	571 629 4110
	81 3 3345 7251 (Tokyo)	Mexico	52 5 520 7841/7847
Korea	822 2 319 4711	Peru	51 1 221 5399
Malaysia	60 3 732 7910	Venezuela	58 2 953 8122
New Zealand	64 9 366 9138	<b>3Com Mediterraneo</b>	
Phillippines	632 892 4476	Italy	39 2 253011 (Milan)
Singapore	65 538 9368		39 6 5279941 (Rome)
Taiwan	886 2 377 5850	Spain	34 1 383 17 00
Thailand	662 231 8151 4	<b>3Com Middle East</b>	
<b>3Com Benelux B.V.</b>			971 4 349049
Belgium	32 2 725 0202	<b>3Com Nordic AB</b>	
Netherlands	31 30 6029700	Denmark	45 39 27 85 00
<b>3Com Canada</b>		Finland	358 0 435 420 67
Calgary	403 265 3266	Norway	47 22 18 40 03
Montreal	514 683 3266	Sweden	46 8 632 56 00
Ottawa	613 566 7055	<b>3Com Russia</b>	
Toronto	416 498 3266		007 095 258 09 40
Vancouver	604 434 3266	<b>3Com Southern Africa</b>	
<b>3Com European HQ</b>			27 11 807 4397
	49 89 627320	<b>3Com UK Ltd.</b>	
<b>3Com France</b>			44 131 220 8228 (Edinburgh)
	33 1 69 86 68 00		44 161 873 7717 (Manchester)
			44 162 889 7000 (Marlow)

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## Returning Products for Repair

Before you send a product directly to 3Com for repair, you must first obtain a Return Materials Authorization (RMA) number. Products sent to 3Com without RMA numbers will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number, call or fax:

<b>Country</b>	<b>Telephone Number</b>	<b>Fax Number</b>
U.S.A. and Canada	1 800 876 3266, option 2	408 764 7120
Latin America	1 408 326 2927	408 764 7120
Europe, South Africa, and Middle East	44 1442 438125	44 1442 435822
Outside Europe, U.S.A., and Canada	1 408 326 2926	1 408 764 7120

## 3Com Corporation LIMITED WARRANTY

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### 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 adapters	Lifetime
Other hardware products (unless specified 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.

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### SOFTWARE

3Com warrants that the software programs licensed from it will perform in substantial conformance to the program specifications therefor for a period of ninety (90) days from the date of purchase from 3Com or its Authorized Reseller. 3Com warrants the media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation with respect to this express warranty shall be (at 3Com's discretion) to refund the purchase price paid by Customer for any defective software products, or to replace any defective media with software which substantially conforms to 3Com's applicable published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will work in combination with any hardware or applications software products provided by third-parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third-party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the noncompatibility is caused by a "bug" or defect in the third-party's product.

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### STANDARD WARRANTY SERVICE

Standard warranty service for *hardware* products may be obtained by delivering the defective product, accompanied by a copy of the dated proof of purchase, to 3Com's Corporate Service Center or to an Authorized 3Com Service Center during the applicable warranty period. Standard warranty service for *software* products may be obtained by telephoning 3Com's Corporate Service Center or an Authorized 3Com Service Center, within the warranty period. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a Return Material Authorization (RMA) number marked on the outside of the package, and sent prepaid, insured, and packaged appropriately for safe shipment. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after receipt of the defective product by 3Com.

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### WARRANTIES EXCLUSIVE

IF A 3COM PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER'S SOLE REMEDY FOR BREACH OF THAT WARRANTY SHALL BE REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT 3COM'S OPTION. TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES, TERMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND SATISFACTORY QUALITY. 3COM NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, OR USE OF ITS PRODUCTS.

3COM SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLIGENCE, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR OR MODIFY, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, OR OTHER HAZARD.

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### LIMITATION OF LIABILITY

TO THE FULL EXTENT ALLOWED BY LAW, 3COM ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF 3COM OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT 3COM'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers or the limitation for personal injury, so the above limitations and exclusions may be limited in their application to you. This warranty gives you specific legal rights which may vary depending on local law.

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### GOVERNING LAW

This Limited Warranty shall be governed by the laws of the state of California.

**3Com Corporation**, 5400 Bayfront Plaza, Santa Clara, CA 95052-8145 (408) 764-5000

9/1/96



