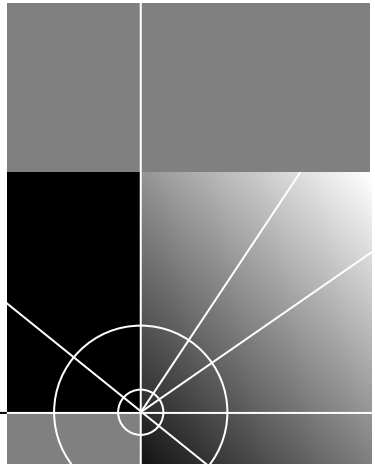
Dual DS3 Asynchronous Transfer Mode

Network Interface Card Getting Started Guide

Part No. 1.024.1333-00

Dual DS3 Asynchronous Transfer Mode

Network Interface Card Getting Started Guide



http://www.3com.com/

Part No. 1.024.1333-00

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

Copyright © 1999, 3Com Corporation. All rights reserved. No part of this documentation may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without written permission from 3Com Corporation.

3Com Corporation reserves the right to revise this documentation and to make changes in content from time to time without obligation on the part of 3Com Corporation to provide notification of such revision or change.

3Com Corporation provides this documentation without warranty of any kind, either implied or expressed, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. 3Com may make improvements or changes in the product(s) and/or the program(s) described in this documentation at any time.

UNITED STATES GOVERNMENT LEGENDS:

If you are a United States government agency, then this documentation and the software described herein are provided to you subject to the following:

United States Government Legend: All technical data and computer software is commercial in nature and developed solely at private expense. Software is delivered as Commercial Computer Software as defined in DFARS 252.227-7014 (June 1995) or as a commercial item as defined in FAR 2.101(a) and as such is provided with only such rights as are provided in 3Com's standard commercial license for the Software. Technical data is provided with limited rights only as provided in DFAR 252.227-7015 (Nov 1995) or FAR 52.227-14 (June 1987), whichever is applicable. You agree not to remove or deface any portion of any legend provided on any licensed program or documentation contained in, or delivered to you in conjunction with, this User Guide.

Unless otherwise indicated, 3Com registered trademarks are registered in the United States and may or may not be registered in other countries.

3Com and the 3Com logo are registered trademarks of 3Com Corporation.

Other brand and product names may be registered trademarks or trademarks of their respective holders.

YEAR 2000 INFORMATION:

For information on Year 2000 compliance and 3Com products, visit the 3Com Year 2000 web page:

http://www.3Com.com/products/yr2000.html

CONTENTS

1 OVERVIEW

Contacting 3Com 1-1
Document Conventions 1-2
Product Description 1-2
Features 1-3
Product Compatibility 1-3

2 INSTALLATION

Installation Tools 2-1
Installation Procedure 2-1

3 NETWORK INTERFACE CARD CABLING

Physical Interfaces 3-1
Accessing the Command Line Interface 3-2
DS3 Port Cabling Options 3-2
Cabling a Single ATM Network Interface Card 3-2
Cabling Multiple Cascaded ATM Network Interface Cards 3-3
Cascading Multiple NICs in the Same Chassis 3-3
Cascading Single NIC's in a Different Chassis 3-4
Cascading Multiple NIC's in a Different Chassis 3-5

A TECHNICAL SPECIFICATIONS

Certification A-1
Regulatory Compliance Statements A-1
United States A-1
FCC Part 15 Compliance Statement A-1

Interface Specifications A-2
Console Port A-2
Line A and Line B DS3 Ports A-2
Ethernet 10Base-T/100Base-TX Ports A-3
Current Draw A-3
Environment A-3
Shipping and Storage A-3
Operating A-3
Physical Dimensions A-3

1 OVERVIEW

This chapter provides an overview of:

- Contacting 3Com
- Document conventions
- Product description
- Product compatibility

Contacting 3Com

Call the appropriate toll free number listed below for technical support.

For European countries that do not have a toll free number listed, call +31 30 602 9900.

Country	Toll Free Number	Country	Toll Free Number
Austria	06 607468	**Netherlands**	0800 0227788
Belgium	0800 71429	**Norway**	800 11376
Canada	1800 2318770	**Poland**	00800 3111206
Denmark	800 17309	**Portugal**	0800 831416
Finland	0800 113153	**South Africa**	0800 995014
France	0800 917959	**Spain**	900 983125
Germany	0800 1821502	**Sweden**	020 795482
Hungary	00800 12813	**Switzerland**	0800 553072
Ireland	1800 553117	**UK**	0800 966197
Israel	0800 9453794	**United States**	1800 2318770
Italy	1678 79489	***All Other Locations (Outside Europe)***	1847 7976600

Refer to the Total Control Hub Documentation CD-ROM for more information regarding product warranty.

For information about Customer Service, including support, training, contracts, and documentation, visit our website at ***http://totalservice.3com.com***

Document Conventions

These tables list conventions used throughout this guide.

Icon	Notice Type	Description
	Information note	Information that contains important features or instructions.
	Caution	Information to alert you to potential damage to a program, system, or device.
	Warning	Information to alert you to potential personal injury or fatality. May also alert you to potential electrical hazard.
	ESD	Information to alert you to take proper grounding precautions before handling a product.

Convention	Description
Text represented as a `screen display`	`This typeface` represents displays that appear on your terminal screen, for example: `Netlogin:`
Text represented as **`commands`**	**`This typeface`** represents commands that you enter for example: **`setenv TCMHOME directory`** *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.*
Text represented as **menu** or **sub-menu names**.	**This typeface** represents all menu and sub-menu names within procedures, for example: On the **File** menu, click **New**.

Product Description

The Dual DS3 Asynchronous Transfer Mode (ATM) Network Interface Card (NIC) works in conjunction with firmware running on the HiPer

Access Router Card (HiPer ARC) to provide a high speed ATM output pipe from the 3Com Total Control Enterprise Network Hub.

Features

The ATM NIC supports:

- Dual DS3 interfaces for cascading multiple chassis
- Single auto-sensing 10/100Base-TX Ethernet interface
- Various standards for routing local area network (LAN) traffic over an ATM network including:
  - RFC-1483—Multiprotocol encapsulation
  - RFC-1577—Classical IP and ARP
- Configuration via the HiPer ARC's command line interface (CLI)

Product Compatibility

The Dual DS3 ATM NIC is compatible with the HiPer ARC Network Application Card (NAC).

2 INSTALLATION

This chapter contains Dual DS3 Asynchronous Transfer Mode (ATM) Network Interface Card (NIC) installation information.

Installation Tools

To install this NIC in the Total Control chassis, you need a #2 Phillips and flat-head screwdriver.

Installation Procedure

To install this NIC:

ESD: *To reduce the risk of electrostatic discharge (ESD), take proper grounding precautions before handling the NIC.*

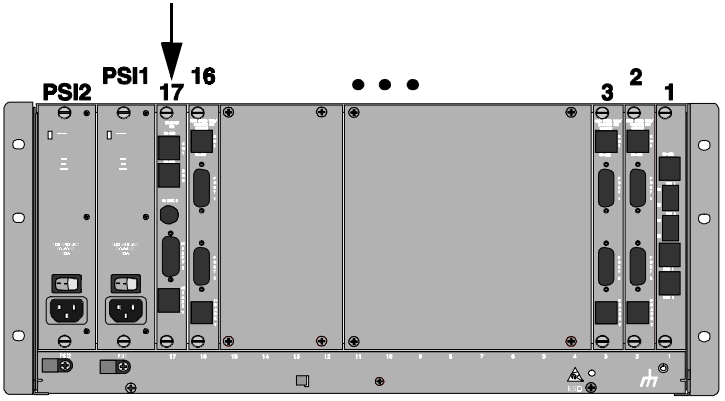
Install the NIC with or without power applied to the chassis.

1 Select a slot at the rear of the Total Control chassis for installing the NIC.

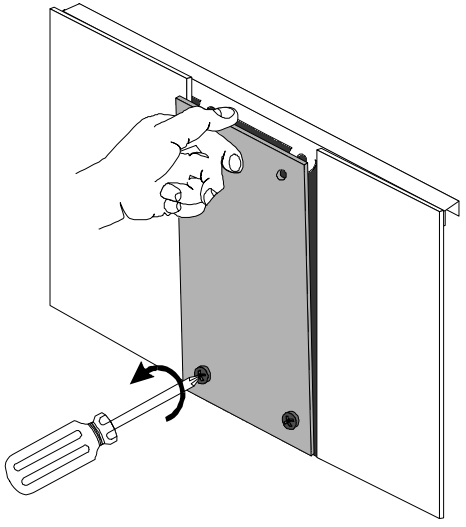
Install this NIC in slots: 1–17

CAUTION: *The Dual DS3 ATM NIC must be installed behind a HiPer Access Router Card (ARC) Network Application Card (NAC).*

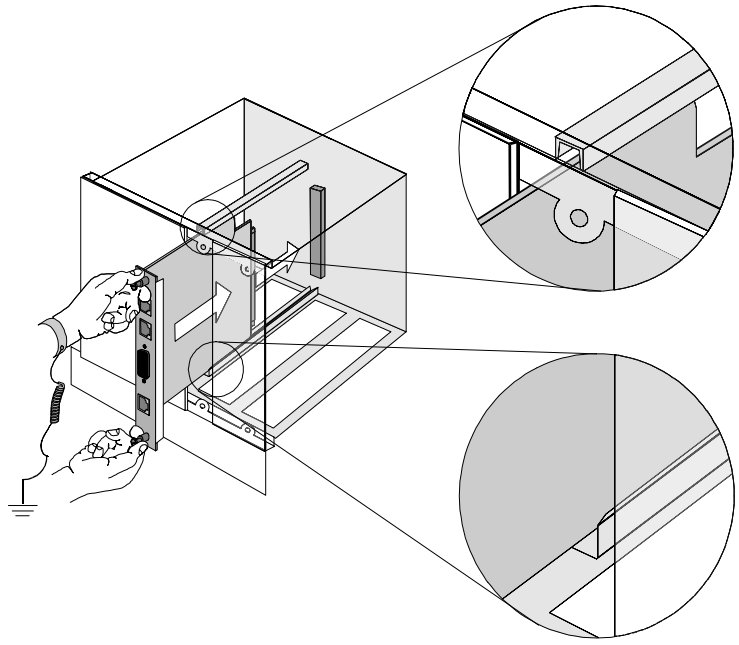
For managed chassis, slot 17 is reserved for a NIC corresponding to the Network Management Card (NMC).



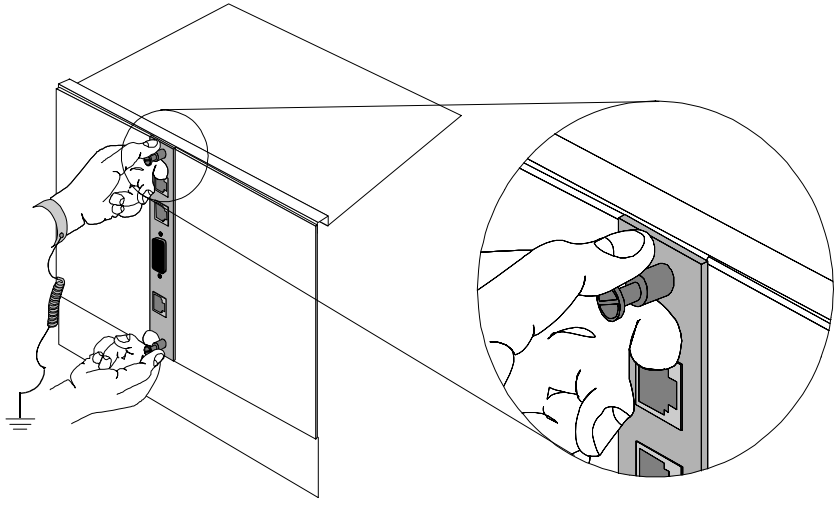
2 Use a #2 Phillips screwdriver to remove the safety panel covering this slot.



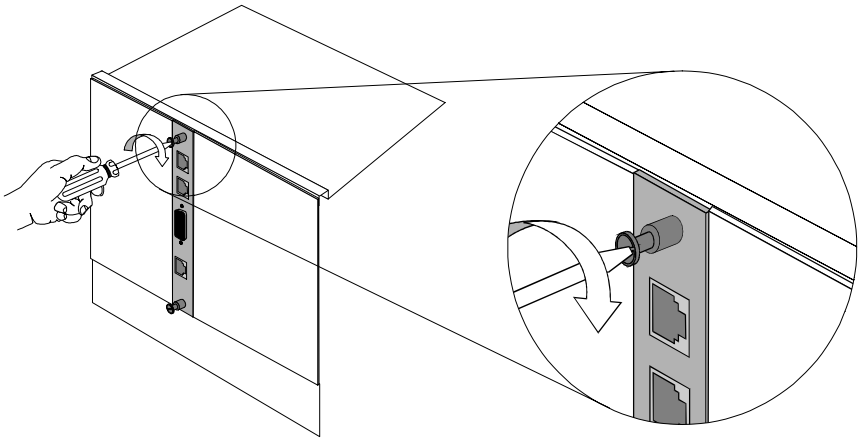
3 Insert the NIC between the slot's upper and lower card guides.



4 Slide the NIC into the chassis, until the front of the NIC is flush with the chassis.



5 Use a flat-head screwdriver to tighten the screws on the front panel.



6 Cover any unused chassis slots with safety panels.

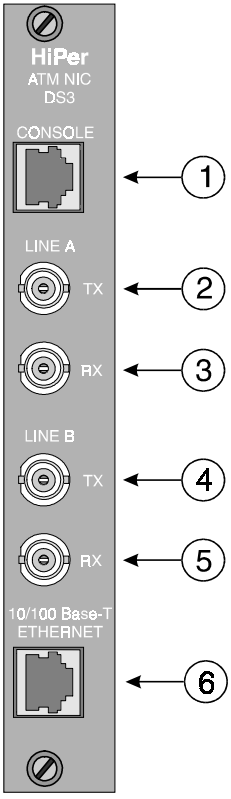
7 Install the HiPer ARC NAC. Refer to the *HiPer ARC NAC Getting Started Guide* for more information.

3 NETWORK INTERFACE CARD CABLING

This chapter provides information about the physical interfaces of the Dual DS3 Asynchronous Transfer Mode (ATM) Network Interface Card (NIC), instructions for accessing the corresponding Network Application Card (NAC) through the command line interface (CLI), and options for cabling the DS3 port.

Physical Interfaces

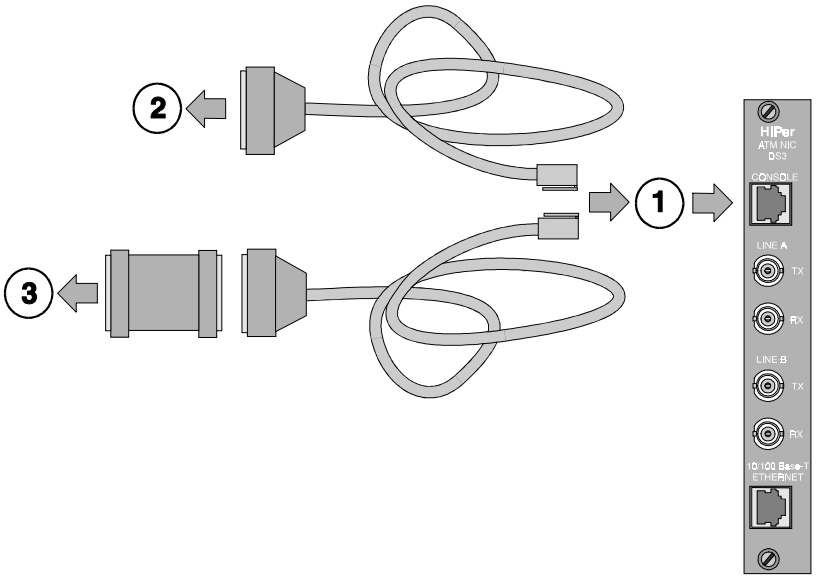
The Dual DS3 ATM NIC has the following physical interfaces:



Callout	Interface Description
1	**Console:** RJ-45 RS-232-C port configured as DTE. ■ Connect to this port to access the HiPer ARC NAC's CLI. This port is configured for 8 data bits, 1 stop bit, no parity. This port's baud rate is selectable via DIP switch settings on the HiPer ARC NAC.
2	**Span A TX:** BNC DS3 transmit port for Span A.
3	**Span A RX:** BNC DS3 receive port for Span A.
4	**Span B TX:** BNC DS3 transmit port for Span B.
5	**Span B RX:** BNC DS3 receive port for Span B.
6	**10/100 Mbps Ethernet:** RJ-45 Ethernet port. ■ This port auto-senses Ethernet 10Base-T or 100Base-TX networks.

Accessing the Command Line Interface

To access the CLI of the corresponding NAC, connect the following cables to the NIC's console port.



Callout	Description
1	RJ-45 connector to NIC's console port
2	DB-25 male connector to modem for remote operations
3	DB-25 female-to-female null modem adapter to PC or terminal COM port

DS3 Port Cabling Options

Cable the ATM NIC's DS3 span ports for an independent connection between a single chassis and the ATM switch, or for multiple cascaded chassis with a single connection to the switch.

The Span B port must be used for cascading multiple chassis. It cannot be used as an independent connection to an ATM switch.

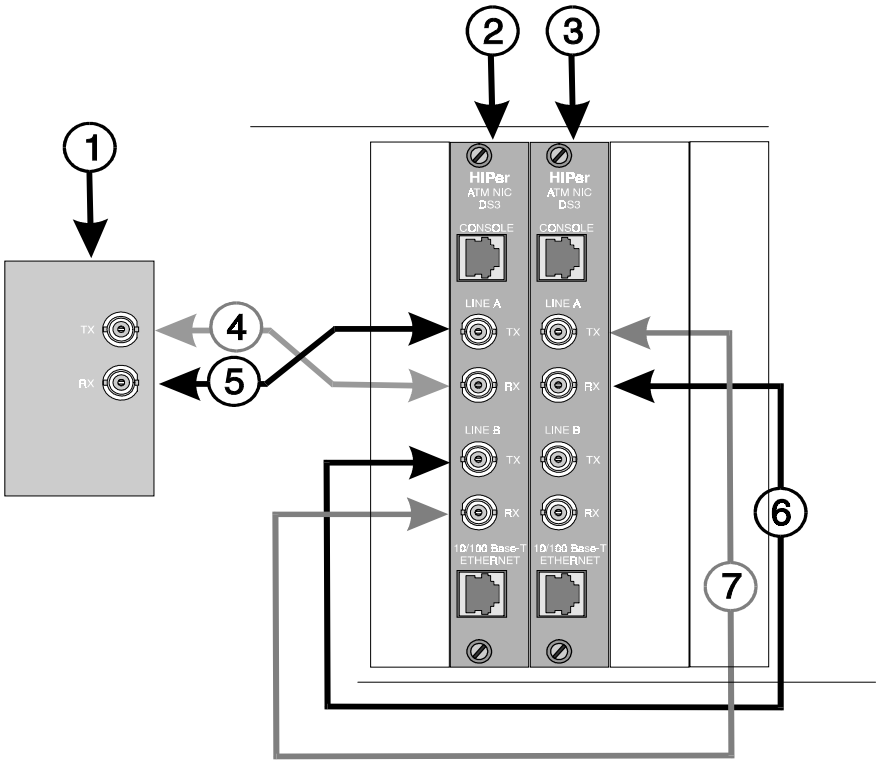
Cabling a Single ATM Network Interface Card

To cable a single chassis to an ATM switch, connect the ATM switch to the ATM NIC's Span A port. Refer to the *Dual DS3 ATM NIC Product Reference* for configuration information.

Cabling Multiple Cascaded ATM Network Interface Cards

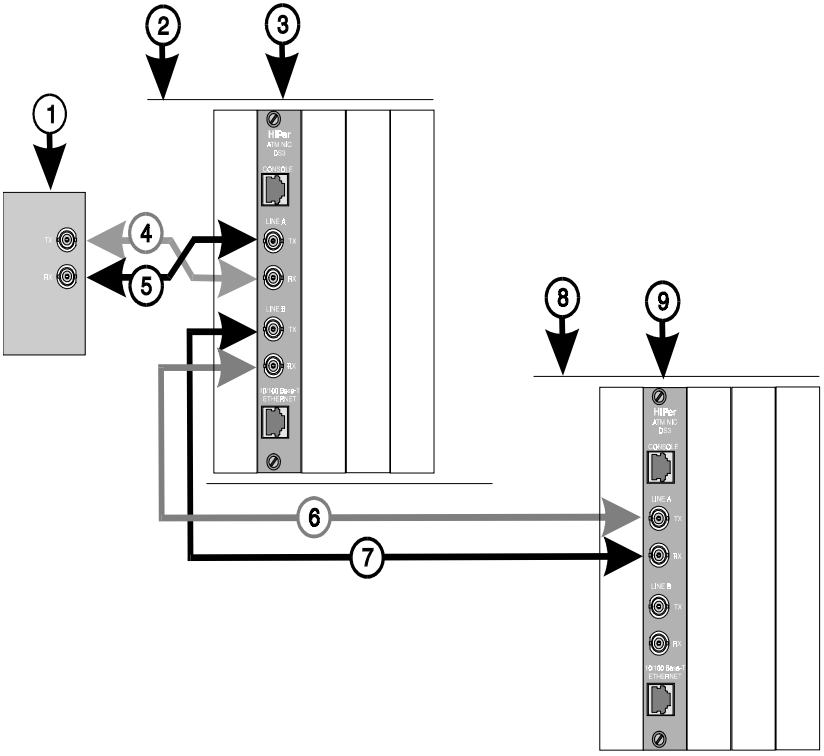
Cascade or daisy-chain multiple ATM NICs to provide additional modem ports and reduce the number of connections to the ATM switch. This configuration allows multiple NICs in the same chassis or multiple chassis.

Cascading Multiple NICs in the Same Chassis



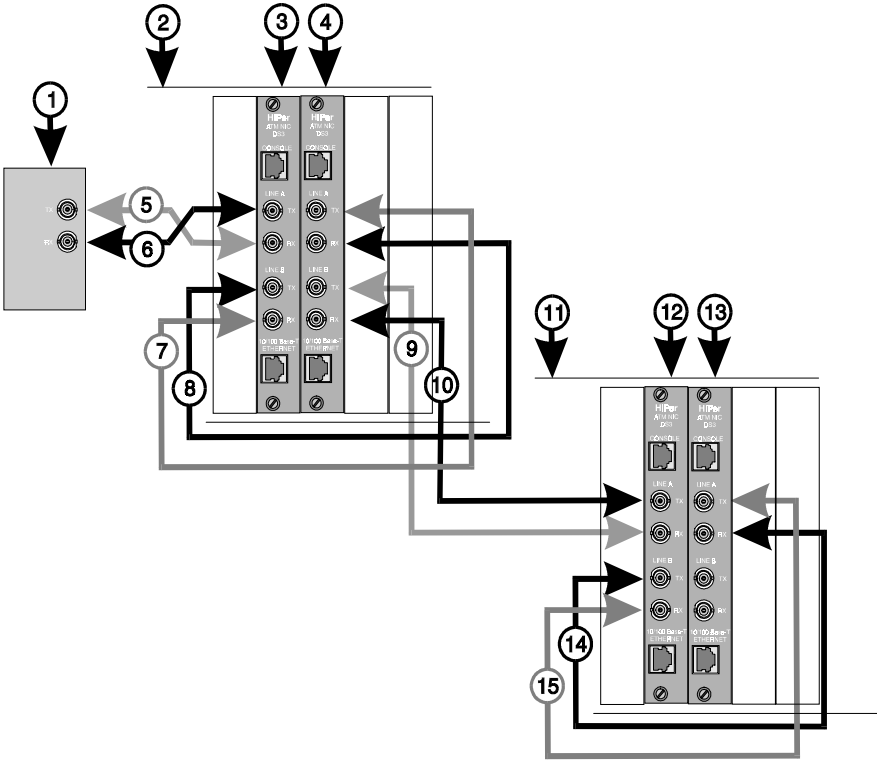
Callout	Description
1	ATM switch
2	ATM NIC 1
3	ATM NIC 2
4	Connection from switch's TX to SPAN A's RX of NIC 1
5	Connection from switch's RX to SPAN A's TX of NIC 1
6	Connection from Span B's TX of NIC 1 to SPAN A's RX of NIC 2
7	Connection from Span B's RX of NIC 1 to SPAN A's TX of NIC 2

Cascading Single NIC's in a Different Chassis



Callout	Description
1	ATM switch
2	Chassis 1
3	Chassis 1's ATM NIC
4	Connection from switch's TX to Span A's RX of Chassis 1's NIC
5	Connection from switch's RX to Span A's TX of Chassis 1's NIC
6	Connection from Span B's TX of Chassis 1's NIC to SPAN A's RX of Chassis 2's NIC
7	Connection from Span B's RX of Chassis 1's NIC to SPAN A's TX Chassis 2's NIC
8	Chassis 2
9	Chassis 2's ATM NIC

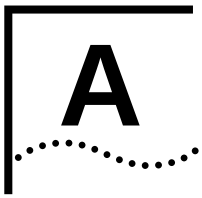
Cascading Multiple NIC's in a Different Chassis



Callout	Description
1	ATM switch
2	Chassis 1
3	Chassis 1's ATM NIC 1
4	Chassis 1's ATM NIC 2
5	Connection from switch's TX to Span A's RX of Chassis 1's NIC 1
6	Connection from switch's RX to Span A's TX of Chassis 1's NIC 1
7	Connection from Span B's TX of Chassis 1's NIC 1 to SPAN A's RX of Chassis 1's NIC 2
8	Connection from Span B's RX of Chassis 1's NIC 1 to SPAN A's TX of Chassis 1's NIC 2
9	Connection from Span B's TX of Chassis 1's NIC 2 to SPAN A's RX of Chassis 2's NIC 1
10	Connection from Span B's RX of Chassis 1's NIC 2 to SPAN A's TX Chassis 2's NIC 1

(continued)

Callout	Description
11	Chassis 2
12	Chassis 2's ATM NIC 1
13	Chassis 2's ATM NIC 2
14	Connection from Span B's TX of Chassis 2's NIC 1 to SPAN A's RX of Chassis 2's NIC 2
15	Connection from Span B's RX of Chassis 2's NIC 1 to SPAN A's TX of Chassis 2's NIC 2



TECHNICAL SPECIFICATIONS

Certification

EMI/RFI	■ FCC 15A ■ EN55022 A
Safety	■ UL 1950 ■ C-UL ■ EN 60950 ■ JATE

Regulatory Compliance Statements

United States

FCC Part 15 Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Interface Specifications

Console Port

Electrical Specification:	RS-232-C (EIA/TIA-232-E standard)
Connector:	RJ-45, 8 position modular jack
Configuration:	Data Terminal Equipment (DTE)
Transmission Method:	Unbalanced RS-232
Transmission Rate:	115,200 bps maximum

Line A and Line B DS3 Ports

Electrical Specification:	DS3/DSX3 interface
Connectors:	BNC coaxial connectors; one transmit (TX) and one receive (RX)
Transmission Media:	75 ohm (nominal impedance) coaxial cable
Cable Distance:	DS3 ■ 0–450 ft (137.16 m) DSX3 ■ 0–225 ft (68.58 m)
Timing Source:	User selectable between: ■ Internal ■ Network
Specifications:	■ ANSI T1.102 ■ T1.404 ■ T1.107 ■ T1.107a ■ GR-499-CORE
Framing:	■ C-bit Parity or Clear Channel ■ ATM Physical layer Convergence Protocol (PLCP) [Optional]
Line Coding:	Binary Eight Zero Code Supression (B8ZS)

Ethernet 10Base-T/100Base-TX Ports

Data Transfer Rate:	10/100 Mbps Auto-Negotiated
Connector:	8-position modular jack, Stewart 88-360808 or equivalent
Accessing Scheme:	Carrier Sense Multiple Access with Collision Detection (CSMA/CD)
Topology:	Star-wired hub using multiport repeater
Maximum Nodes:	Limited only by repeater
Transmission Medium:	Unshielded Twisted Pair (UTP) Category 3 or Category 5 for 10Base-T applications, Category 5 for 100Base-TX
Network Lobe Distance:	100 m (328 ft) suggested maximum. Longer cabling can be used at the expense of reduced receiver squelch levels.

Current Draw

+5.2 vDC @ 2.0 A typical maximum

Typical maximum refers to the maximum current draw under most typical configurations.

Environment

Shipping and Storage

Temperature:	-25 to 75° C, -13 to 167° F
Relative Humidity:	0 to 100%, Non-condensing

Operating

Temperature:	0 to 40° C, 32 to 104° F
Relative Humidity:	0 to 95%, Non-condensing

Physical Dimensions

	Inches	Centimeters
Length:	5.30	13.46
Width:	0.79	2.00
Height:	6.90	17.53

3Com Corporation
5400 Bayfront Plaza
P.O. Box 58145
Santa Clara, CA
95052-8145

©1999
3Com Corporation
All rights reserved
Printed in the U.S.A.

Part No. 1.024.1333-00