DIGITAL 2T-ATM51-AA
PMC ATM Adapter

Installation and Service Guide

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Preface

Overview

This guide provides the information necessary to install and service the DIGITAL 2T-ATM51-AA PCI Mezzanine Card (PMC) in systems with PMC slots.

Intended Audience

This guide is intended for DIGITAL service personnel or qualified self-maintenance customers who are familiar with installing computer systems.

Organization

This guide is organized as follows:

Chapter 1, Introduction – Provides an overview of asynchronous transfer mode (ATM) technology and an introduction to the DIGITAL 2T-ATM51-AA PMC ATM adapter.

Chapter 2, Installing the Adapter – Describes the procedure for installing the DIGITAL 2T-ATM51-AA PMC ATM adapter into a PCI mezzanine-compatible computer and how to connect it to the network.

Related Documents

Other documents related to the DIGITAL 2T-ATM51-AA PMC ATM adapter include the following:

- *ATMworks 351 Adapter Installation and Service* (EK-DGLPA-IN)

Conventions

This guide uses the following conventions:

Convention	Meaning
Note	A note calls the reader's attention to any item of information that may be of special importance.
Caution	A caution contains information essential to avoid damage to the equipment.
Warning	A warning contains information essential to the safety of personnel.
❶	Circled numbers provide a link between figures or examples and text.
MONOSPACE	Text displayed on the screen is shown in monospace type.
bold type	Bold type denotes user input or software commands.
Italic type	Italic type emphasizes important information, indicates variables, and indicates complete titles of manuals.

Reader's Comments

DIGITAL welcomes your comments on this or any other manual. You can send your comments to DIGITAL by mail to the following address:

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1 Introduction

This chapter describes the 2T-ATM51-AA PMC ATM adapter and provides an overview of asynchronous transfer mode (ATM) technology.

1.1 What Is ATM?

ATM is a network technology that provides transparent service for voice, video, and data over a common media.

ATM is a switched network technology based on the transmission of 53-byte fixed-length cells. The ATM standards specify a number of different transmission speeds, providing scalability across moderate to very high-speed applications. For applications such as full-motion video that need a steady, fixed-rate of transmission, ATM allows you to reserve a specific bandwidth for transmission of this data.

Each physical connection in an ATM LAN is a point-to-point link between switches and/or end stations.

1.2 2T-ATM51-AA PMC ATM Adapter

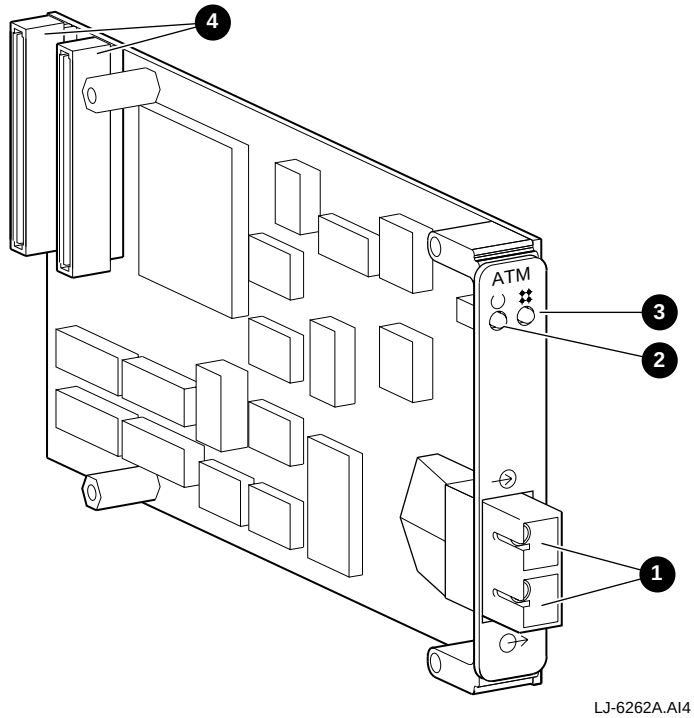
The 2T-ATM51-AA PMC ATM adapter is a high-performance full-duplex ATM adapter that enables systems with PCI Mezzanine Card (PMC) slots to communicate on an ATM network.

The 2T-ATM51-AA PMC ATM adapter is an ATM adapter implementation in the PMC mechanical form factor. The 2T-ATM51-AA PMC ATM adapter supports multimode fiber-optics (9-pin SC) connection to the ATM network.

The adapter's LEDs indicate the status of the adapter and its connection to the network. Figure 1-1 shows the 2T-ATM51-AA PMC ATM adapter and its components.

The adapter contains 16 sequential MAC addresses, and the first in the sequence is printed on a label on the adapter. Refer to the `README.TXT` on the CD-ROM for an explanation about how to print these 16 MAC addresses.

Figure 1-1 2T-ATM51-AA PMC ATM Adapter



❶ Multimedia fiber-optic (SC) connectors

❷ Module LED

❸ Network LED

❹ PCI mezzanine card connectors

1.3 Product Features

The 2T-ATM51-AA PMC ATM adapter supports the following features:

- Uses multimode fiber-optic cabling running at 155 Mb/s with SONET/SDH framing
- Supports ATM adaptation layer 5 (AAL5) for class C connection-oriented traffic and raw cell support
- Several types of flow control can be used concurrently: ABR/Explicit Rate, Generic Flow Control (GFC), and FLOWmaster
- Performs segmentation and reassembly in host memory
- Supports 16 (MAC) addresses
- Supports 1024 virtual channels to receive and 1024 virtual channels to transmit simultaneously
- PCI Rev 2.1 compliant
- Supports available bit rate (ABR), constant bit rate (CBR), and unspecified bit rate (UBR) quality of service
- Delivers high-performance, 32-bit DMA transfers
- Supports universal signaling on the PCI

Consult the operating system documentation about the following features:

- Classical-IP over ATM per RFC 1577 (client and ARP server)
- Permanent virtual circuits (PVCs)
- Switched virtual circuits (SVCs)
- Q.93B/Q.2931 signaling protocol
- IP (routed) encapsulation per RFC 1483
- ATM UNI 3.0 and 3.1
- Class of services (ABR, CBR, and UBR)
- OAM (F4 and F5)
- LAN Emulation 1.0
- Multiple NIC support
- SMP support
- ABR, GFC, and FLOWmaster flow control

1.4 System Requirements

The 2T-ATM51-AA PMC ATM adapter is a PMC adapter that can be installed in PMC slots on AXPvme single board computers.

For more information about PCI local bus-compatible systems, refer to the PCI specification V2.1. The systems must meet the following requirements:

- PCI bus master slot
- Compliance with PCI Rev. 2.1
- MMF cable (SC connectors)

1.5 Power Requirements

Table 1-1 lists the power requirements for the 2T-ATM51-AA PMC ATM adapter.

Table 1-1 Power Specifications

Voltage	5.2 volts
Current	2.4 amperes
Watts	13 watts

When adding any option module to your computer, verify that combined power requirements (wattage) required for all option modules do not exceed system power supply ratings. Check your computer documentation for this information.

1.6 Environmental Requirements

Table 1-2 lists the environmental requirements for the 2T-ATM51-AA PMC ATM adapter.

Table 1-2 Environmental Specifications

Operating temperature	5°C to 50°C (41°F to 122°F)
Nonoperating temperature	-40°C to 70°C (-40°F to 158°F)
Relative humidity	10% to 95% (noncondensing)

1.7 Operating System Software

Table 1-3 lists the supported operating system software.

Table 1-3 Operating System Software

Operating System	Software Version
DIGITAL UNIX	V4.0, V4.0B, or V4.0C
Windows NT	Refer to Windows NT documentation
Novell NetWare	Refer to Novell documentation

A `README.TXT` file in the root directory of the CD-ROM provides an overview of its contents. Windows NT and Novell documentation are also located on the CD-ROM accompanying the adapter.

Refer to the Network Products Business Home page, which contains the latest driver versions and associated release notes.

Other operating systems will be supported at a later date. The Network Products Business Home page will contain the latest information.

The DIGITAL Alpha Systems must have the correct revision of the console software. Refer to the AlphaServer and AlphaStation system documentation for console code revision.

1.8 Unpacking and Checking

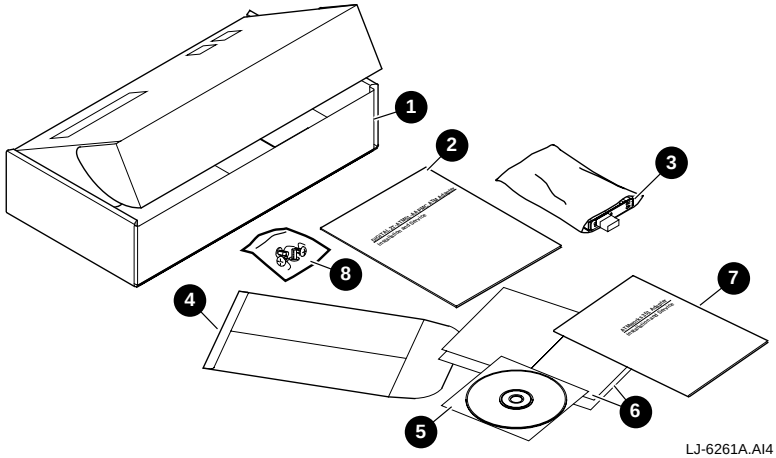
The 2T-ATM51-AA PMC ATM adapter and documentation are shipped in one box. Remove the contents of the shipping container and keep the original packing materials. Check the contents for damage or missing parts. In case of damage, contact your delivery agent and your DIGITAL sales representative. If parts are missing, contact your DIGITAL sales representative.

Caution

Static electricity can damage modules and electronic components. DIGITAL recommends using a grounded antistatic wriststrap and a grounded work surface when handling modules.

Figure 1-2 shows the contents of the shipping container.

Figure 1-2 Contents of Shipping Container



❶ Shipping container

❷ *DIGITAL 2T-ATM51-AA PMC ATM Adapter Installation and Service Guide*

❸ 2T-ATM51-AA adapter

❹ Envelope

❺ CD-ROM

❻ Mail-in cards

❼ *ATMworks 351 Adapter Installation and Service*

❽ Plastic bag with four mounting screws

The CD-ROM contains the following information:

- General ATM and DIGITAL UNIX driver release notes
- Novell NetWare driver and release notes
- Windows NT (Intel and Alpha) driver and release notes
- Management applications, PCI utilities, and other miscellaneous applications

For the most up to date driver information and support tips, refer to the following online services:

BBS	To read the Bulletin Board System, set your modem to 8 bits, no parity, 1 stop bit, and dial 508-486-5777 (U.S.).
WWW	The Digital Equipment Corporation Network Products Business Home Page on the World Wide Web is at the following addresses:
	North America: http://www.networks.digital.com
	Europe: http://www.networks.europe.digital.com
	Australia: http://www.digital.com.au/networks

2
Installing the Adapter

This chapter describes the procedure for installing the DIGITAL 2T-ATM51-AA PMC ATM adapter into a PCI mezzanine-compatible computer and how to connect it to the network.

2.1 Before You Begin

Before you begin installing the DIGITAL 2T-ATM51-AA PMC ATM adapter, you must perform the following steps:

1. Print and read the `README.TXT` file that is found on the CD-ROM.
2. Verify the system and software requirements.
3. Perform an orderly shutdown of the operating system.
4. Power down the system unit.
5. Disconnect any cables from the motherboard that the adapter is being installed in.

Caution

Static electricity can damage modules and electronic components. DIGITAL recommends using a grounded antistatic wriststrap and a grounded work surface when handling modules.

2.1.1 Installation Checklist

You will need the following documentation, equipment, and tools to install the 2T-ATM51-AA PMC ATM adapter:

- System documentation
- 2T-ATM51-AA PMC ATM adapter
- *DIGITAL 2T-ATM51-AA PMC ATM Adapter Installation and Service Guide* (this document)
- Multimode fiber-optic cabling with SC connectors to connect your system to the network
- Antistatic grounded wriststrap
- Phillips-head screwdriver

2.1.2 Preparing for Installation

This section explains how to prepare your system for installation of the 2T-ATM51-AA PMC ATM adapter into a PCI mezzanine-compatible computer.

To prepare your system for the adapter installation, perform the following steps:

1. Perform an orderly shutdown of the operating system and wait until the console prompt appears before removing power.

Caution

Ensure that you turn off power to the computer before inserting or removing the adapter to avoid permanent damage to the adapter or other computer circuitry.

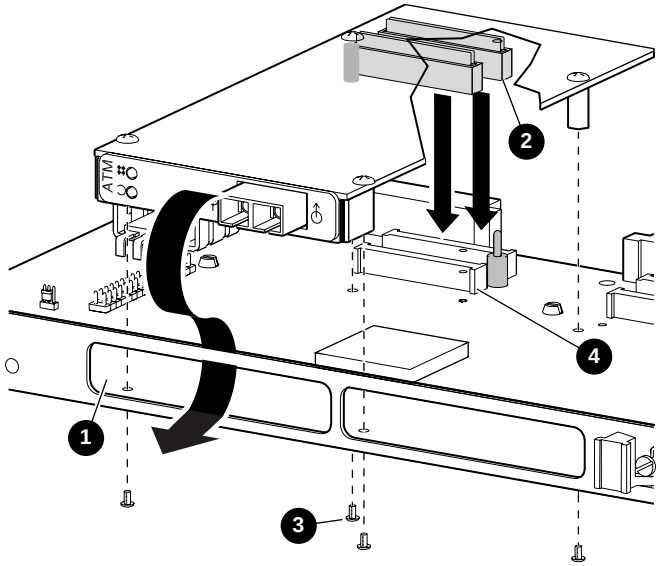
2. Attach the antistatic wriststrap to your wrist and clip the other end to the computers chassis ground.
3. Remove the motherboard from the computer chassis (refer to your system documentation.
4. Remove the option slot cover from the computer's selected PMC slot.
5. Remove the adapter from the antistatic protective bag.

2.2 Installing the 2T-ATM51-AA PMC ATM Adapter

To install the 2T-ATM51-AA PMC ATM adapter into PCI-based computer with a mezzanine slot, perform the following steps:

1. Insert the adapters bezel into the cutout ❶ on the front panel of the motherboard (see Figure 2-1).
2. Engage the PCI mezzanine card connectors ❷ on the adapter into the connectors ❹ on the motherboard, ensuring that they are fully seated (see Figure 2-1).
3. Secure the adapter to the motherboard by inserting the four mounting screws ❸ through the clearance holes on the reverse side of the motherboard (see Figure 2-1).
4. Replace the motherboard in the backplane.

Figure 2-1 Installing the 2T-ATM51-AA Adapter



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2.3 Connecting the System to the Network

The 2T-ATM51-AA PMC ATM adapter uses multimode fiber-optic cabling to connect your system unit to the network.

To attach the fiber-optic SC cable connectors to the adapter, perform the following steps:

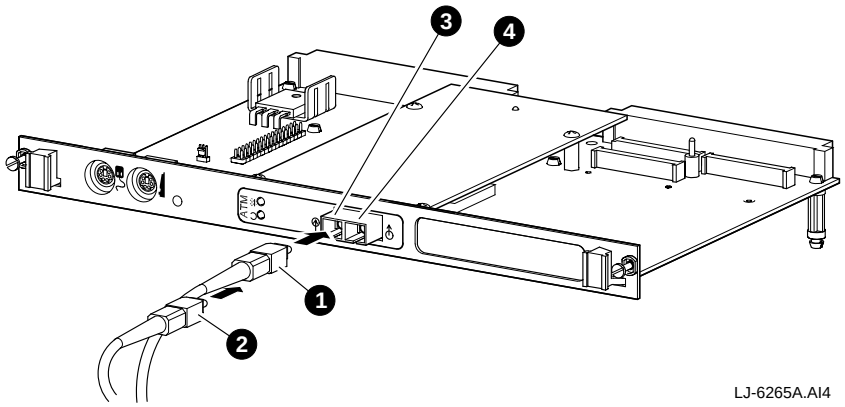
1. Remove the dust caps from the fiber-optic SC cable connectors and the adapter ports.

Note

The bend radius of any fiber-optic cable is 2.5 cm (1 inch) or greater. To avoid optical power loss, do not touch the fiber ends.

2. Connect the receive cable connector ❶ to the receive port ❸ on the adapter, ensuring that the key is correctly positioned (see Figure 2-2).
3. Connect the transmit cable connector ❷ to the transmit port ❹ on the adapter, ensuring that the key is correctly positioned (see Figure 2-2).
4. Connect the other end of the fiber-optic cable to the FDDI network or network device, ensuring that the transmit cable is connected to the receive port and that the receive cable is connected to the transmit port on the FDDI network or network device.

Figure 2-2 Connecting MMF Cables



2.4 Checking the LED Status

The 2T-ATM51-AA PMC ATM adapter's LEDs indicate the status of the adapter and its connections to the network as described in Table 2-1. See Figure 1-1 for the location of the status LEDs.

Table 2-1 Adapter LED Status Indicators

Module LED	Network LED	Status
Off	Off	Slot is not receiving power, or the 2T-ATM51-AA driver has not been loaded.
Green	Off/Amber/Green	2T-ATM51-AA driver loaded and module OK.
Amber	Amber	2T-ATM51-AA adapter in reset mode.
Amber	Off	Diagnostics failed.
Green/Off	Green	Physical link connection made.
Green/Off	Amber	No physical link connection.

2.5 Obtaining More Information

For more information about the use of the adapter, refer to the information on the CD-ROM for your specific operating system. The information in the `README.TXT` file includes troubleshooting and technical support information.