

ATMworks 351 Adapter

Installation and Service

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This manual describes how to install and verify the operation of the ATMworks 351 adapter in a PCI local bus-compatible system.

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- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

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Contents

Preface

1 Introducing the ATMworks 351

1.1	What Is ATM?	1-1
1.2	ATMworks 351 Adapter	1-2
1.3	Product Features	1-5
1.4	System Requirements	1-6
1.5	Power Requirements	1-7
1.6	Environmental Requirements	1-7
1.7	Operating System Software	1-8
1.8	Unpacking and Checking	1-9

2 Installing the Adapter

2.1	Before You Begin	2-1
2.1.1	Installation Checklist	2-2
2.1.2	Preparing for Installation	2-2
2.2	Installing the ATMworks 351 Adapter	2-4
2.3	Connecting the System to the Network	2-6
2.3.1	MMF Cable Version	2-6
2.3.2	UTP Cable Version	2-8
2.4	Checking the LED Status	2-9
2.5	Obtaining More Information	2-9

Figures

1-1	ATMworks 351 Adapter, MMF	1-3
1-2	ATMworks 351 Adapter, UTP	1-5
1-3	Contents of Shipping Container	1-12
2-1	Removing the Option Slot Cover	2-3
2-2	Installing the ATMworks 351 Adapter	2-5
2-3	Connecting MMF Cables	2-7
2-4	Connecting UTP Cable	2-8

Preface

This manual explains how to install the ATMworks 351 adapter into a Peripheral Component Interconnect (PCI) local bus-compatible system.

Intended Audience

This manual is for the user who has some technical background installing system hardware.

Document Structure

This manual is structured as follows:

Chapter	Description
Chapter 1	Provides an overview of ATM technology and an introduction to the ATMworks 351 adapter.
Chapter 2	Describes the procedure for installing the ATMworks 351 adapter into a PCI local bus-compatible system and connecting the media.

Conventions

This manual uses the following conventions:

Type	Description
<i>Special typeface</i>	Indicates a literal example of system output.
Bold typeface	Indicates that a word or phrase is being emphasized to the reader.
<i>Italic typeface</i>	Used in command syntax or examples to indicate variables for which either the user or the system supplies a value.

Safety Statements

Any warning or caution that appears in this manual is defined as follows:

Warning	Contains information to prevent personal injury.
Caution	Contains information to prevent damage to equipment.
Vorsicht	Enthält Informationen, die beachtet werden müssen, um den Benutzer vor Schaden zu bewahren.
Achtung	Enthält Informationen, die beachtet werden müssen, um die Geräte vor Schaden zu bewahren.
Danger	Signale les informations destinées à prévenir les accidents corporels.
Attention	Signale les informations destinées à prévenir la détérioration du matériel.
Aviso	Contiene información para evitar daños personales.
Precaución	Contiene información para evitar daños al equipo.

The cautions you must observe for the hardware described in this manual appear below in English, German, French, and Spanish.

CAUTION	Static electricity can damage modules and electronic components, Digital recommends using a grounded antistatic wrist strap and a grounded work surface when handling any modules.
ACHTUNG	Module und elektronische Komponenten können durch elektrostatische Entladungen beschädigt werden. Benutzen Sie immer eine antistatische Gelenkmanschette und ein geerdete Arbeitsunterlage, wenn Sie am offenen Gerät arbeiten.
ATTENTION	Les charges excessives d'électricité statique peuvent endommager les modules et les composants électroniques. Digital conseille l'utilisation d'un bracelet de masse et d'un plan de travail mis à la terre lors de la manipulation des modules
PRECAUCIÓN	La electricidad estática puede dañar los componentes electrónicos y los módulos. Digital recomienda que se utilicen cintas de pasadores y superficies de trabajo conectadas a tierra al trabajar con cualquier módulo.

1

Introducing the ATMworks 351

This chapter describes the ATMworks 351 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 ATMworks 351 Adapter

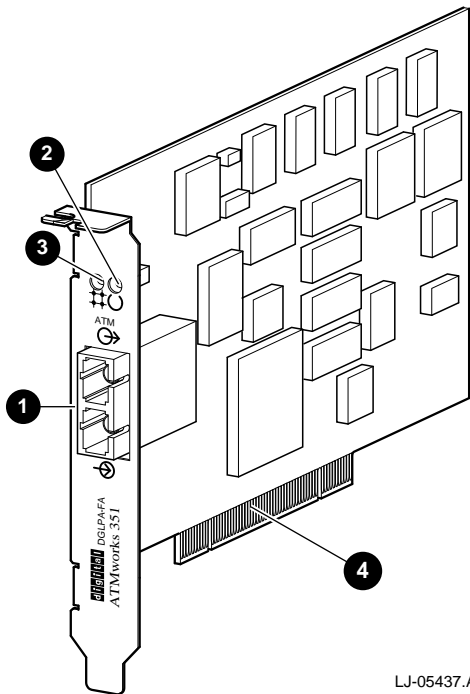
The ATMworks 351 adapter is a high-performance full-duplex ATM adapter that enables systems with Peripheral Component Interconnect (PCI) slots to communicate on an ATM network.

The ATMworks 351 adapter is a half-size PCI 32-bit module that occupies one PCI option slot, which must be enabled to act as a bus master on the PCI bus. There are two versions of the ATMworks 351: one has a multimode fiber optics (9-pin SC) connection to the ATM network, the other has a CAT-5 UTP (8-pin MJ) connection to the ATM network.

The adapter's LEDs indicate the status of the adapter and its connection to the network. Figures 1-1 and 1-2 show the ATMworks 351 adapter and its components.

Each 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 for an explanation about how to print these 16 MAC addresses.

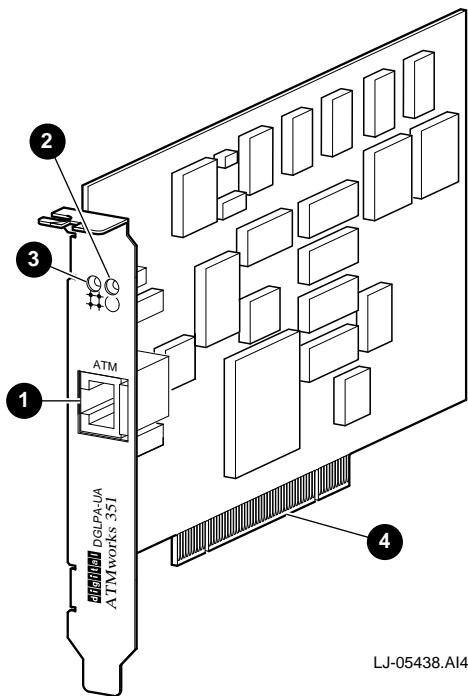
Figure 1–1 ATMworks 351 Adapter, MMF



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Item	Description
1	MMF connector
2	Module LED
3	Network LED
4	120-pin card edge finger pins with universal/32-bit PCI keying

Figure 1–2 ATMworks 351 Adapter, UTP



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Item	Description
1	UTP transmit and receive connectors
2	Module LED
3	Network LED
4	120-pin card edge finger pins with universal/32-bit PCI keying

1.3 Product Features

The ATMworks 351 adapter supports the following features:

- Uses either multimode fiber-optic cabling running at 155 Mb/s with SONET/SDH framing or unshielded twisted pair Category 5 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 ATMworks 351 adapter is a half-size PCI card and occupies one PCI option slot. The adapter can be installed in the following PCI local bus-compatible systems:

- AlphaPC, AlphaServer, and AlphaStation systems (32 MB memory minimum)
- Intel-based PCs and servers (16 MB memory minimum)

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) or UTP Category 5 cable (MJ connector)

1.5 Power Requirements

The following table lists the power requirements for the ATMworks 351 adapter:

Voltage	Current	Watts
5.25 volts	2.4 amperes	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.

Note

This adapter can be plugged into a system supporting either PCI 5V signaling or PCI 3.3V signaling.

1.6 Environmental Requirements

The following table lists the electrical requirements for the ATMworks 351 adapter:

Specification	Rating
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

The following table lists the supported operating system software:

Operating System	Software Version
Digital UNIX	V3.2c or higher
Windows NT	Refer to Windows NT documentation
Novell NetWare	Refer to Novell documentation

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

Refer to the CD for a pointer to the ATMworks 351 web page, which contains the latest driver versions and associated release notes.

Other operating systems will be supported at a later date. The ATMworks 351 web 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

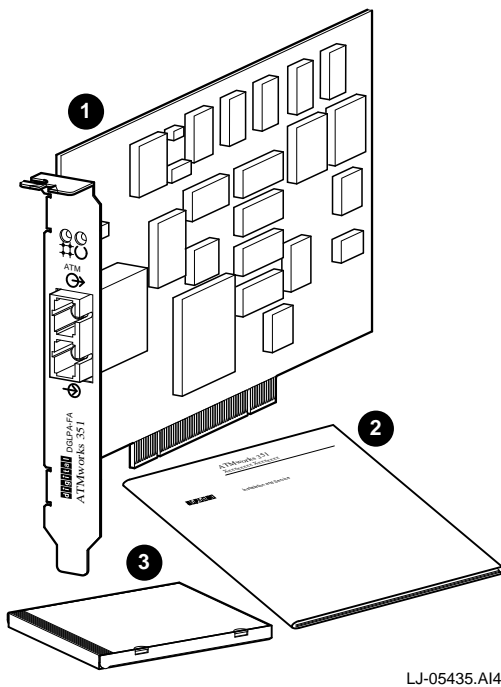
The ATMworks 351 adapter and documentation are shipped in one box. Figure 1-3 shows the shipping container contents.

Step	Action
1	Remove the contents of the shipping container and keep the original packing materials.
2	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 wrist strap and a grounded work surface when handling modules.

Figure 1-3 Contents of Shipping Container



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Item	Description
1	ATMworks 351 adapter
2	ATMworks 351 Installation and Service manual (this document)
3	CD

The CD 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 how to install the ATMworks 351 adapter in a PCI local bus-compatible system.

2.1 Before You Begin

Before you begin installing the ATMworks 351 adapter, you must perform the following steps:

Step	Action
1	Print and read the README . TXT file on the CD.
2	Verify the system and software requirements.
3	Shut down the system.
4	Power down the system unit.
5	Disconnect the cables from the rear of the system unit.

Caution

Static electricity can damage modules and electronic components. Digital recommends using a grounded antistatic wrist strap 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 ATMworks 351 adapter:

- System documentation
- ATMworks 351 adapter
- ATMworks 351 Installation and Service manual (this document)
- Multimode fiber-optic cabling with an SC connector to connect your system to the network

or

CAT-5 UTP cabling with an RJ-45 connector to connect your system to the network

- Antistatic grounded wrist strap
- Phillips-head screwdriver

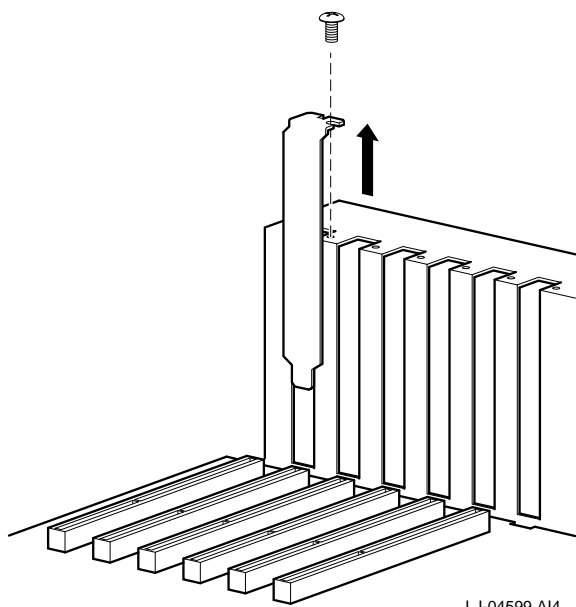
2.1.2 Preparing for Installation

This section explains how to prepare your system for installation of the ATMworks 351 adapter into a PCI local bus-compatible system.

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

Step	Action
1	Remove the cover from your system unit. (Refer to your system unit's documentation for instructions.)
2	Attach the antistatic ground strap to your wrist and clip the other end of the strap to the system's ground.
3	Identify a half-size option slot (+15 watts). (Refer to your system unit's documentation for instructions.)
4	Unscrew and remove the option slot cover. Save the screw to use later. Figure 2-1 shows removal of the option slot cover.
5	Remove the adapter from the antistatic bag.

Figure 2-1 Removing the Option Slot Cover



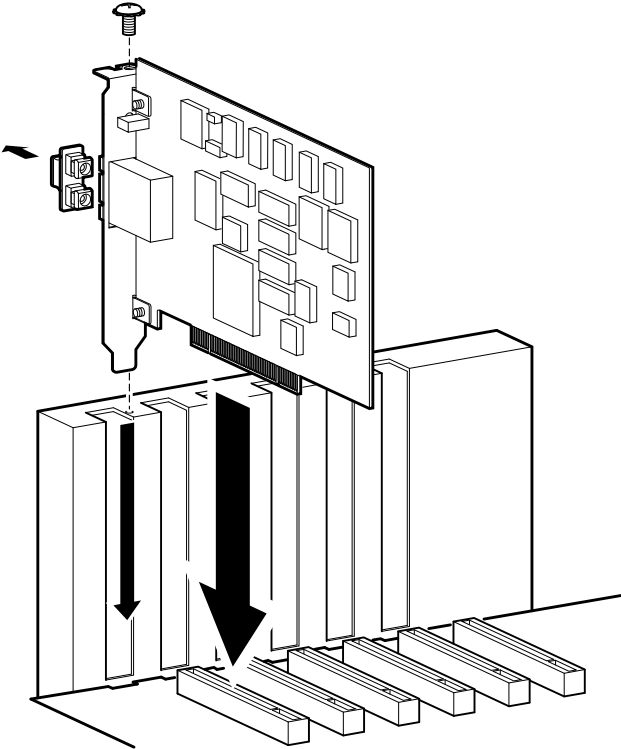
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2.2 Installing the ATMworks 351 Adapter

To install the ATMworks 351 adapter into your PCI system, perform the following steps:

Step	Action
1	Attach one end of the antistatic wrist strap to your wrist and the other end to the system.
2	For the multimode fiber version, remove the optical dust caps from the SC connectors.
3	Check the connector key on the system board to position the adapter. Hold the adapter by the edges and insert it into the appropriate PCI option slot. Ensure that the card edge finger pins are firmly seated in the slot. Figure 2-2 shows the installation of the ATMworks 351 adapter.
4	Fasten the adapter to the system using the existing screw.
5	Replace the system unit cover.
6	Remove the antistatic wrist strap.

Figure 2-2 Installing the ATMworks 351 Adapter



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2.3 Connecting the System to the Network

The ATMworks 351 adapter uses multimode fiber-optic cabling or Category-5 UTP cabling to connect your system unit to the network.

2.3.1 MMF Cable Version

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

Step	Action
1	Remove the dust caps from the 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.

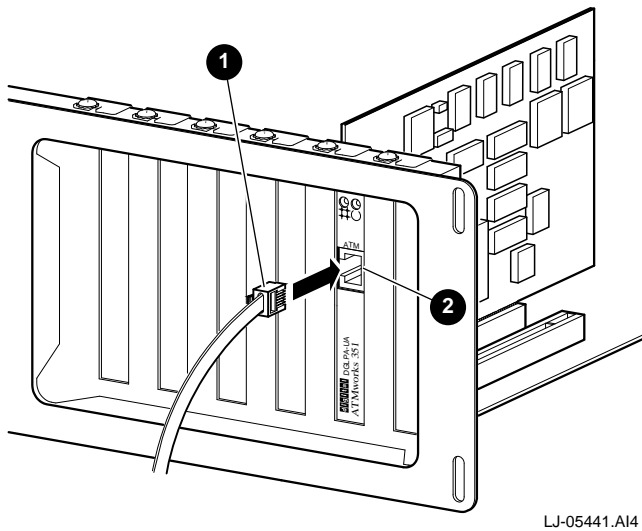
2	Line up the transmit cable connector with the transmit port and the receive cable connector with the receive port. Insert the SC connectors, ensuring the key is correctly positioned. Figure 2-3 shows the connection of the multimode fiber-optic cables.
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2.3.2 UTP Cable Version

To attach the UTP cable connector to the adapter (see Figure 2–4), perform the following steps:

Step	Action
1	Align the key of the modular jack (MJ) plug with the locking key of the MJ receptacle.
2	Push the MJ plug into the receptacle until the plug mates fully with the locking key. You will hear a snapping sound when the locking key engages.

Figure 2–4 Connecting UTP Cables



Item	Description
1	MJ plug
2	MJ receptacle

2.4 Checking the LED Status

The ATMworks 351 adapter's LEDs indicate the status of the adapter and its connections to the network as described in the following table:

Module LED	Network LED	Status
Off	Off	Slot is not receiving power, or the ATMworks 351 driver has not been loaded.
Green	Off/Amber/Green	ATMworks 351 driver loaded and module OK.
Amber	Amber	ATMworks 351 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 for your specific operating system. The information in the `README.TXT` file includes troubleshooting and technical support information.

