ATMworks 350 Adapter
Installation and Service

Part Number: EK–DGLPB–IN. B01

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This manual describes how to install and verify the
operation of the ATMworks 350 adapter in a PCI local
bus-compatible system.

Revision/Update Information: This is a revised
manual.

Contents

Figures

Preface

This manual explains how to install the ATMworks 350 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 350 adapter.
Chapter 2	Describes the procedure for installing the ATMworks 350 adapter into a PCI local bus-compatible system and connecting the media.

Conventions

The following conventions are used in this document:

Type	Description
Special type	Indicates a literal example of system output.
Bold typeface	Indicates that a word or phrase is being emphasized to the reader.
italic typeface	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.
Precaucion	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, along with the pages on which these safety messages appear.

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. [Page 1-10, 2-1]
ACHTUNG	Module und elektronische Komponenten können durch elektrostatische Entladungen beschädigt werden. Benutzen Sie immer eine antistatische Gelenkmanschette und eine 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 350

This chapter describes the ATMworks™ 350 adapter and provides an overview of ATM (asynchronous transfer mode) technology.

1.1 What is ATM?

ATM is a network technology that provides transparent service for voice, video, and data which allows a corporation to implement a single backbone communication network.

ATM is a switched network technology based on the transmission of 53-byte fixed-length cells. The ATM standard specifies 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 number of cells for transmission of this data.

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

1.2 ATMworks 350 Adapter

The ATMworks 350 adapter is a high-performance full-duplex ATM adapter, allowing connectivity for peripheral component interconnect (PCI) local bus-compatible systems by providing an end-station interface between the PCI and an ATM User-Network Interface (UNI) compliant network.

The ATMworks 350 adapter is a full-size PCI 32-bit module that occupies a full-length PCI option slot, which must be master enabled to act as a bus master on the PCI bus. Multimode fiber optics (SC connectors) connect the adapter 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 ATMworks 350 adapter and its components.

Figure 1–1 ATMworks 350 Adapter
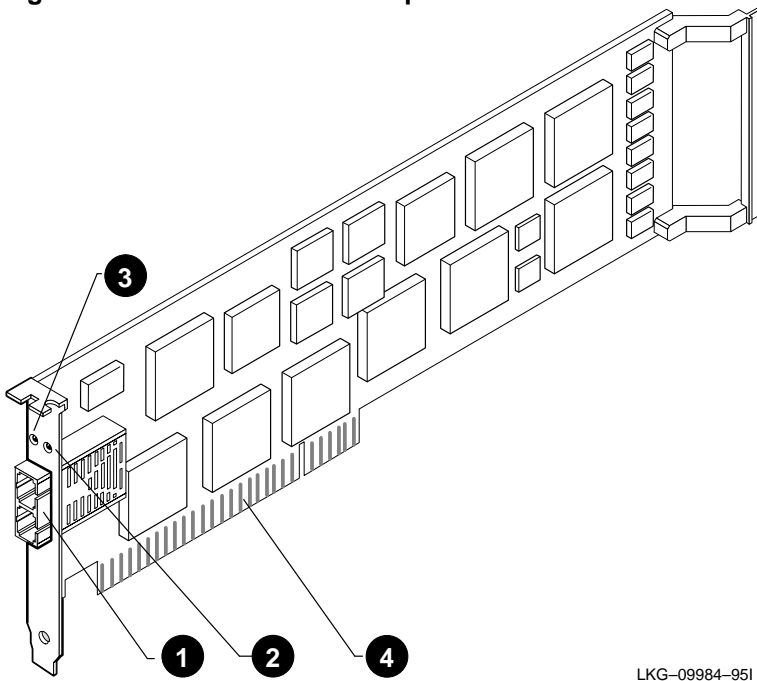
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Item	Description
1	SC transmit and receive connectors
2	Module LED
3	Network LED
4	120-pin card edge finger pins with 5V/32 bit PCI keying

1.3 Product Features

The ATMworks 350 adapter supports the following features:

- Uses multimode fiber optic cabling running at 155 Mbps with SONET/SDH framing

- Supports ATM adaptation layer 5 (AAL5), designed for class C connection-oriented traffic

- Provides full-duplex operation and implements FLOWmaster™ flow control

- Supports 2048 virtual channels to receive and 2048 channels to transmit

- Supports CBR (constant bit rate) and UBR (unspecified bit rate) quality of service

- Uses packet-based interface to host, eliminating host processing of cells

- Delivers high-performance, full-speed, 32-bit DMA transfers at 132 Mbps

Product Features (Continued)

Consult the operating system documentation about the following features:

- Classical-IP over ATM per RFC 1577
- PVCs (permanent virtual circuits)
- SVCs (switched virtual circuits)
- SNMP agent for network management
- Q.93B/Q.2931 signaling protocol
- IP encapsulation per RFC 1483
- ATM UNI 3.0 and 3.1
- Class of services (CBR and UBR)
- LAN Emulation 1.0
- Multiple LIS support
- FLOWmaster flow control

1.4 System Requirements

The ATMworks 350 adapter is a full-size (12.28 x 4.2 inches) PCI card and occupies a full-size PCI option slot. The adapter can be installed in the following PCI local bus-compatible systems:

- Alpha PCs, servers, and workstations

- Intel-based PCs and servers and Novell servers
  (BIOS code should support PCI-to-PCI bridge chips)

- PCI workstations

- Power PCs

For more information about PCI local bus-compatible systems, refer to the PCI specification V2.0. The systems must support the following requirements:

- PCI bus master slot

- Compliance with PCI Rev. 2.0

- 3.5-inch floppy disk drive

- SC cables

1.5 Power Requirements

The following table lists the power requirements for the ATMworks 350 adapter.

Voltage	Current Amps	Application
5.35 (14.7125 W)	2.75	Optics and logic

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** _____

Do not use this adapter in systems using 3.3V signaling modules or in 3.3V-only PCI systems. Use the adapter only with 5V or universal signaling modules.

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1.6 Environmental Requirements

The following table lists the electrical requirements for the ATMworks 350 adapter.

Specification	Rating
Operating temperature	5°C to 50°C (41°F to 122°F)
Nonoperating temperature	-40°C to 85°C (-40°F to 185°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 later
Windows NT	Refer to Windows NT documentation
Novell Server	Refer to Novell documentation

A `README.TXT` file in the root directory of each diskette provides an overview of the diskette contents. Windows NT and Novell documentation are located on the diskettes accompanying the adapter.

1.8 Alpha System Console Requirements

The Alpha systems must have the correct revision of the console software.

Alpha Model	Minimum Console Software Revision
AlphaServer 1000	V5.0
AlphaServer 2000	V4.1
AlphaServer 2100	V4.1
AlphaServer 8200	V2.0
AlphaServer 8400	V2.0
AlphaStation 200	V4.2
AlphaStation 250	V4.2
AlphaStation 400	V4.2

Refer to the AlphaServer and AlphaStation system documentation for console code revision.

1.9 Unpacking and Checking

The ATMworks 350 adapter and documentation are shipped in one box. Figure 1–2 shows the shipping container contents.

Step	Action
1	Remove the contents of the shipping container and be sure to keep all original packing materials.
2	Check the contents for damage and 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.

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Figure 1–2 Contents of Shipping Container
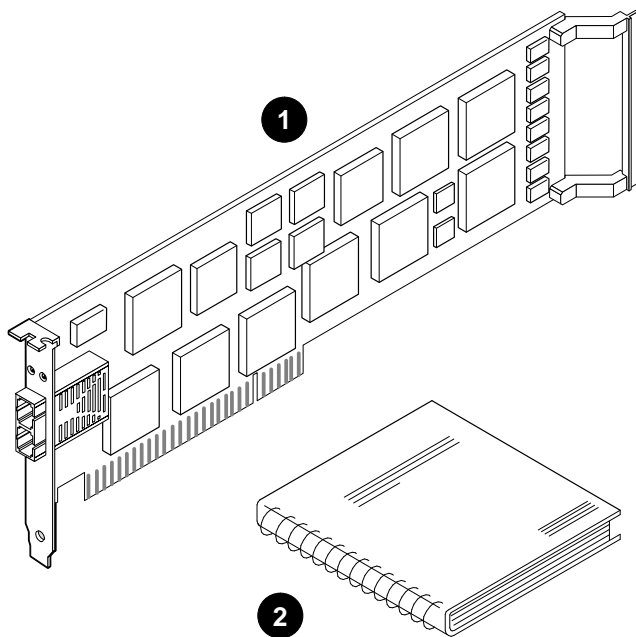
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Item	Description
1	ATMworks 350 adapter
2	ATMworks 350 Installation and Service manual (this document)

The four distribution diskettes are also in the shipping container. The diskettes contain the following information.

1. General ATM and UNIX information
2. Novell driver and information
3. Windows NT (Intel) driver and information
4. Windows NT (Alpha) driver and information

2

Installing the Adapter

This chapter describes how to install the ATMworks 350 adapter in a
PCI local bus-compatible system.

2.1 Before You Begin

Before you begin installing the ATMworks 350 adapter, you must
perform the following steps:

Step	Action
1	Print and read the `README.TXT` file located in the root directory of each diskette.
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 anti-
static wrist strap and a grounded work surface when handling
modules.

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2.1.1 Installation Checklist

You will need the following documentation, equipment, and tools to install the ATMworks 350 adapter.

Item	Description
1	System documentation
2	ATMworks 350 adapter with extender bracket
3	ATMworks 350 Installation and Service manual (this document)
4	Multimode fiber-optic cabling with SC connectors to connect your system to the network
5	Anti-static grounded wrist strap
6	Phillips-head screwdriver

2.1.2 Preparing for Installation

This section explains how to prepare your system for installation of the ATMworks 350 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, and rear bezel if necessary, from your system unit. (Refer to your system unit's documentation for instructions about how to do this.)
2	Remove any diskettes from the computer's disk drives.
3	Attach the anti-static ground strap to your wrist and clip the other end of the strap to the system's ground.
4	Identify a full-size option slot (+15 Watts). (Refer to your system unit's documentation for instructions about how to do this.)
5	Unscrew and remove the option slot cover. Save the screw to use later. Figure 2-1 shows removal of the option slot cover.
6	Remove the adapter from the anti-static bag, then remove the optical dust caps from the SC connectors.

--- **Note** ---

For the AlphaServer 2100 systems, you must remove the adapter's extender bracket before installation.

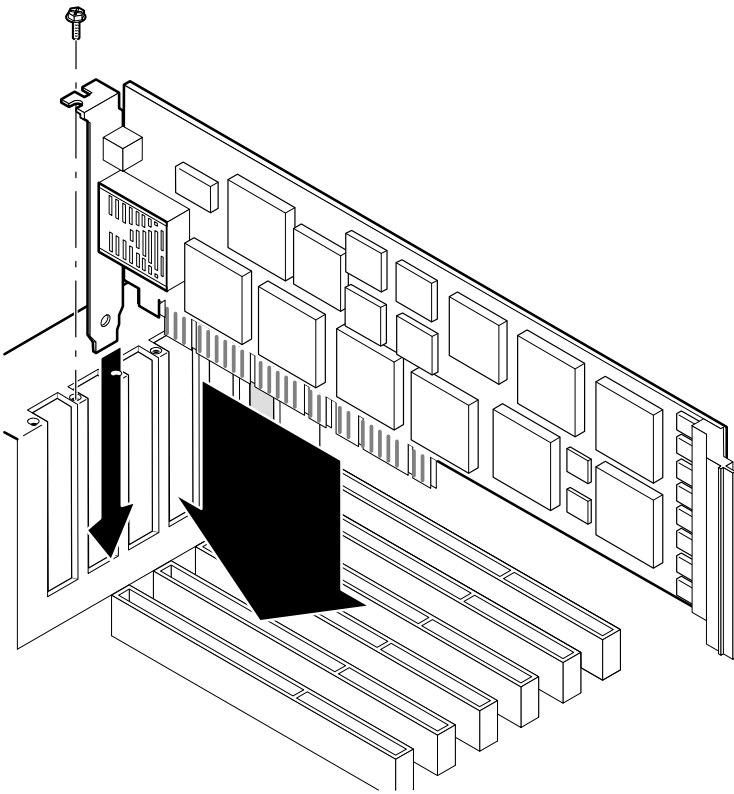**Figure 2–1   Removing Option Slot Cover**
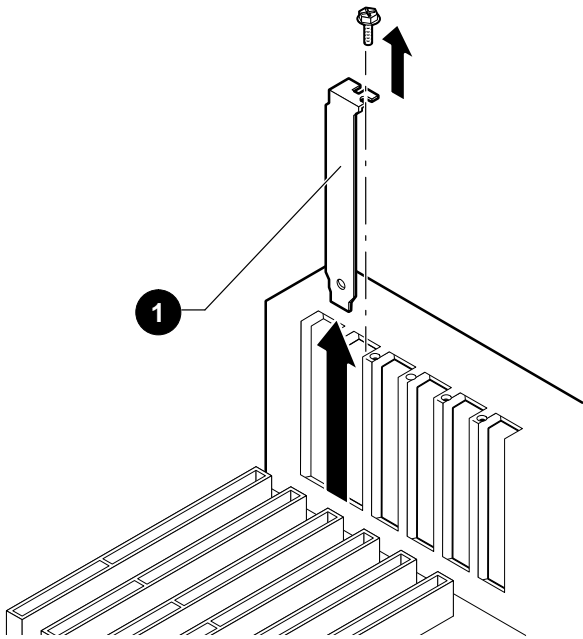
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Item	Description
1	Option slot cover

2.2 Installing the ATMworks 350 Adapter

To install the ATMworks 350 adapter into your PCI system, perform the following steps:

Step	Action
1	Attach one end of the anti-static wrist strap to your wrist and the other end to the system.
2	Check the connector key on the system board to position the adapter. Align the adapter with the extender bracket guide at the rear of the system. 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 350 adapter.
3	Fasten the adapter to the system using the existing screw.
4	Replace the system unit cover.
5	Remove the anti-static wrist strap.

Figure 2–2   Installing the ATMworks 350 Adapter

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2.3 Connecting the System to the Network

The ATMworks 350 adapter uses multimode fiber optic cabling to connect your system unit to the network. 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.

Step	Action
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 optics.

Figure 2–3 Connecting Multimode Fiber Optics
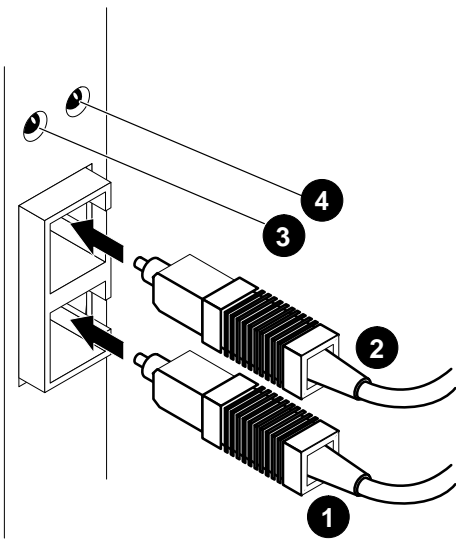
LKG–09991–95I

Item	Description
1	SC receive connector
2	SC transmit connector
3	Network LED
4	Module LED

2.4 Obtaining More Information

For more information about the use of the adapter, refer to the information that is located on the diskette for your specific operating system. The information contained in the README.TXT file includes troubleshooting and technical support information.