

64-bit/66MHz PCI ATM MMF Adapter

# Installation and Using Guide

**Note**

Before you install this product and use this information, be sure to read the product warranties and notices information included with the system unit into which you are installing the product.

**First Edition (September 2001)**

Before using this information and the product it supports, read the information in "Safety Information" on page v and "Appendix B. Notices" on page 21.

A reader's comment form is provided at the back of this publication. If the form has been removed, address comments to Publications Department, Internal Zip 9561, 11400 Burnet Road, Austin, Texas 78758-3493. To send comments electronically, use this commercial internet address: [aix6kpub@austin.ibm.com](mailto:aix6kpub@austin.ibm.com). Any information that you supply may be used without incurring any obligation to you.

© International Business Machines Corporation, 2001. All rights reserved.

Note to U.S. Government Users Restricted Rights--Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

<b>Safety Information.</b>	v
<b>Handling Static-Sensitive Devices.</b>	vii
<b>About This Book</b>	ix
ISO 9000	ix
Related Publications	ix
Trademarks	ix
<b>Chapter 1. Overview</b>	1
Software Requirements	1
<b>Chapter 2. Installing the ATM 155 Software and the 64-bit/66MHz PCI ATM MMF Adapter</b>	3
Preparing to Install the ATM 155 Software	3
Installing the ATM 155 Software	3
Installing the Adapter	4
Verifying Adapter Available for Use	4
Connecting the 64-bit/66MHz PCI ATM MMF Adapter to the Network	5
<b>Chapter 3. Configuring the ATM 155 Software</b>	7
Configuring the Adapter	7
Setting the Hostname, Nameserver, or Gateway	8
Configuring PVCs	9
Removing the ATM 155 Software.	10
<b>Chapter 4. Managing the Network</b>	13
ATM Connections	13
TCP/IP over ATM	13
Configuring with PVCs	14
Networking with ATM SVCs	14
Changing ATM Adapter Characteristics	14
<b>Appendix A. Communications Statements</b>	17
Federal Communications Commission (FCC) Statement	17
European Union (EU) Statement	18
International Electrotechnical Commission (IEC) Statement	18
United Kingdom Telecommunications Safety Requirements	18
Avis de conformité aux normes du ministère des Communications du Canada	19
Canadian Department of Communications Compliance Statement	19
VCCI Statement	19
Radio Protection for Germany	19
<b>Appendix B. Notices</b>	21
<b>Appendix C. Troubleshooting and Diagnostics</b>	23

Diagnostics . . . . .	23
Troubleshooting . . . . .	23
<b>Appendix D. Product Features and Specifications . . . . .</b>	<b>25</b>
Features . . . . .	25
Specifications . . . . .	26

---

## Safety Information

### DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.



---

## Handling Static-Sensitive Devices

**Attention:** Static electricity can damage the device and your system unit. To avoid damage, keep this device in its anti-static protective bag until you are ready to install it. To reduce the possibility of electrostatic discharge, follow the precautions listed below:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- While the CD-ROM drive is still in its anti-static package, touch it to an unpainted metal part of the system unit for at least two seconds. (This drains static electricity from the package and from your body.)
- Remove the device from its package and install it directly into your system unit without setting it down. If it is necessary to set the device down, place it on its static-protective package. (If your device is an adapter, place it component-side up.) Do not place the device on your system unit cover or on a metal table.
- Take additional care when handling devices during cold weather, as heating reduces indoor humidity and increases static electricity.



---

## About This Book

This publication is written for system administrators and for experienced computer users who have a general understanding of asynchronous transfer mode (ATM), networking, and AIX Version 4.3.3, as well as AIX Version 5.1.0 and later.

It provides instructions to install the 64-bit/66MHz PCI ATM MMF Adapter with AIX and with ATM 155 software. Instructions include directions to configure the 64-bit/66MHz PCI ATM MMF Adapter.

**Note:** Abbreviations used in this book:

- ATM: asynchronous transfer mode
- MMF: multi-mode fiber
- PCI: peripheral component interconnect

---

## ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

---

## Related Publications

The following publications contain related information:

- System unit documentation for information specific to your hardware configuration
- AIX operating system documentation for information specific to your software configuration

The AIX documentation library is available at the following Web address:

<http://www-1.ibm.com/servers/aix/library/>. Select **Technical Publications**. AIX documentation is also contained on the AIX Documentation CD that was shipped with your AIX operating system. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD into a CD-ROM compatible drive.

---

## Trademarks

The following term is a trademark of International Business Machines Corporation in the United States, other countries, or both:

- AIX

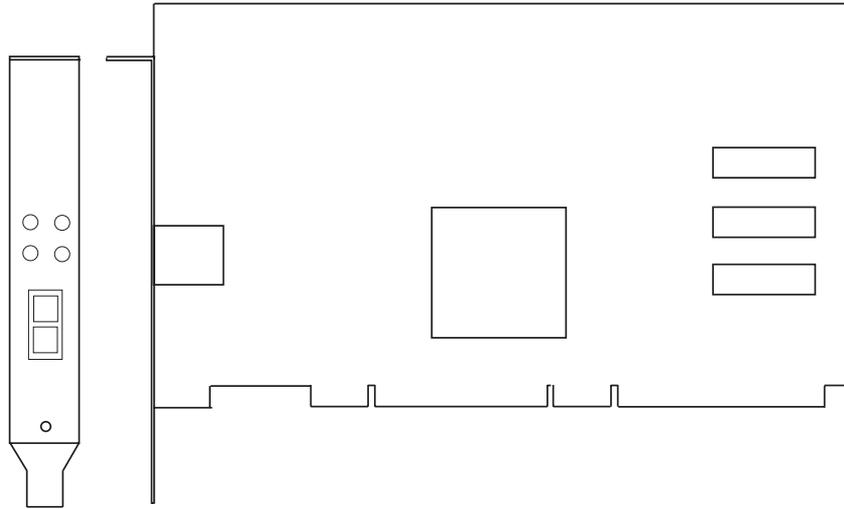
Other company, product, and service names may be trademarks or service marks of others.



---

## Chapter 1. Overview

The 64-bit/66MHz PCI ATM MMF Adapter provides dedicated, 155 Mbps full-duplex connection to ATM networks over either permanent virtual circuits (PVC) or switched virtual circuits (SVC). It also supports communication with devices located on an ATM network or bridged to a token ring, Ethernet, or other LAN.



**Note:** Instructions assume you are connecting the 64-bit/66MHz PCI ATM MMF Adapter on AIX to an ATM switch or concentrator. Follow the instructions in “Chapter 2. Installing the ATM 155 Software and the 64-bit/66MHz PCI ATM MMF Adapter” on page 3, to install the ATM 155 software and to install and connect the 64-bit/66MHz PCI ATM MMF Adapter.

---

## Software Requirements

The 64-bit/66MHz PCI ATM MMF Adapter is supported on AIX Version 4.3.3, as well as AIX Version 5.1.0 and later. If support is required on an AIX release other than these versions, ensure that this adapter is supported on that release of AIX prior to installation. Contact your support representative for assistance.



---

## Chapter 2. Installing the ATM 155 Software and the 64-bit/66MHz PCI ATM MMF Adapter

This chapter explains how to install the 64-bit/66MHz PCI ATM MMF Adapter with ATM 155 software, as well as how to connect ATM cables. Before proceeding with these instructions, it is recommended that you read “Chapter 4. Managing the Network” on page 13.

---

### Preparing to Install the ATM 155 Software

Ensure that your system is running a compatible AIX Version. Compatible versions include AIX 4.3.3, as well as AIX Version 5.1.0 and later. To verify the operating system level, type `oslevel` and press Enter. If your system is running an earlier level, contact your support representative to determine if your level is supported.

---

### Installing the ATM 155 Software

This section explains how to install the AIX ATM common code and the ATM 155 software for the 64-bit/66MHz PCI ATM MMF Adapter. To install the software, do the following:

1. Turn on the system unit power.
2. Log in as root user.
3. Insert the media containing the AIX ATM common code device driver software (for example, CD-ROM) into the appropriate media device.
4. Type the following:  

```
smitty devinst
```

  
and press Enter.
5. The Install Additional Device Software screen highlights the **INPUT device/directory for software** option.
6. Select or type your input device:
  - Press F4 to display the input device list. Select the name of the device (for example, CD-ROM) that you are using and press Enter.  
OR
  - In the Entry Field, type the *name of the input device* you are using and press Enter.
7. The Install Additional Device Software screen highlights the **SOFTWARE to install** option.
8. Press F4 to display the SOFTWARE to install screen.
9. Type the following to display the Find screen:  
/  
/
10. Type the following  

```
devices.pci.14106001
```

and press Enter. The system finds and highlights this device driver.

11. Press PF7 to select the device driver and press Enter.
12. The Install Additional Device Software screen displays. Entry data fields are automatically updated. Press Enter to accept the data.
13. The ARE YOU SURE window displays. Press Enter to accept the data.
14. The Command Status screen displays.
  - The term RUNNING is highlighted to indicate that the install and configure command is in progress.
  - When RUNNING changes to OK, scroll down to the bottom of the page and locate the Installation Summary.
  - After a successful installation, SUCCESS appears in the Result column of the summary at the bottom of the page.
15. Remove the installation media from the drive.
16. Press F10 to exit SMITTY.
17. This step is optional for systems with hot-pluggable capability. At the command line, type:  

```
shutdown -F
```

and press Enter.

Refer to your operating system User's Guide for instructions.

18. Go to "Installing the Adapter".

---

## Installing the Adapter

Refer to your system unit documentation for specific instructions to install your adapter.

---

## Verifying Adapter Available for Use

To verify that your newly installed 64-bit/66MHz PCI ATM MMF Adapter is available for use, do the following:

1. If necessary, turn on your system unit power.
2. Log in as root user.
3. At the prompt, type  

```
lsdev -Cc adapter | grep atm
```

and press Enter.

4. A list of adapters displays. Verify that the 64-bit/66MHz PCI ATM MMF Adapter is in Available mode. If your 64-bit/66MHz PCI ATM MMF Adapter is not available, run the diagnostics utility described in "Appendix C. Troubleshooting and Diagnostics" on page 23.

---

## Connecting the 64-bit/66MHz PCI ATM MMF Adapter to the Network

Before using your 64-bit/66MHz PCI ATM MMF Adapter, refer to your local procedures to connect it to an ATM switch or concentrator.

**Note:** The connector on the adapter conforms with the ATM Forum standard. If your switch connector pinout is not compatible with this standard, obtain or create a cable that conforms to the standard.



---

## Chapter 3. Configuring the ATM 155 Software

This chapter explains how to configure the ATM 155 software for AIX. Included are guidelines for implementing an ATM Address Resolution Protocol (ARP) server. Before you perform these instructions, it is recommended that you read “Chapter 4. Managing the Network” on page 13.

---

### Configuring the Adapter

To configure the 64-bit/66MHz PCI ATM MMF Adapter, do the following:

1. Turn on your system unit power.
2. Log in to the AIX operating system as root user.
3. At the AIX command prompt, type the following:

```
smitty inet
```

and press Enter.

**Note:** The **ifconfig** command is not compatible with the ATM Network Interface Driver (NID). Use only the SMITTY application when configuring the ATM NID.

4. From the Network Interface Selection menu, select **Add a Network Interface**.
5. From the Add a Network Interface menu, select **Add an ATM Network Interface**.
6. Use the following instructions to set the values in the Add an ATM Network Interface screen:

- **INTERNET ADDRESS**

Type the dotted decimal Internet Protocol (IP) address assigned to your workstation (for example, 10.125.26.89) and press Enter.

- **Network MASK**

Type the dotted decimal IP network mask for your workstation (for example, 255.255.255.0) and press Enter.

**Note:** To obtain the addresses, see your system administrator.

- **Network Interface**

Type `at0` and press Enter.

- **Connection Type**

Press F4 and select one of the following types:

**svc\_s** Switched Virtual Channel (SVC) ARP Server

**svc\_c** SVC ATM Client

**pvc** SVCs disabled (only permanent virtual channels, PVCs, are used)

- **ATM Server Address**

- For client connections **svc\_c**, type the 20-byte hexadecimal ARP server ATM address for your system unit and press Enter. (For example, 39.99.99.99.99.99.00.00.99.99.02.02.00.00.8d.44.a3.02.03).

To obtain your ATM server address, at the command prompt type the following on the ARP server machine and press Enter.

```
arp -t atm -a
```

- For server connections **svc\_s**, no address is required. Leave this field blank.
  - Alternate Devices  
Data not required; leave field blank.
  - Idle Timer  
Data not required; leave field blank.
  - ACTIVATE the Interface after Creating it?  
To activate the interface, select Yes (the default).
7. When the Command status in the Command Status screen changes from running to OK, press F10 to exit SMITTY.

To set the hostname, a nameserver, or a gateway; continue with the next section.

To use permanent virtual channels (PVCs), go to “Configuring PVCs” on page 9.

---

## Setting the Hostname, Nameserver, or Gateway

To set the hostname, nameserver, or gateway, do the following:

1. At the AIX command prompt, type:  

```
smitty tcpip
```

  
and press Enter.
2. From the TCP/IP menu, select **Minimum Configuration & Startup**.
3. From the list of Available Network Interfaces, select **at0**.
4. The Minimum Configuration & Startup screen displays.
5. Type the information for the hostname, nameserver, or gateway in the Minimum Configuration & Startup screen and press Enter.

**Note:** To obtain these addresses see your system administrator.

6. When the Command status in the Command Status screen changes from running to OK, press F10 to exit SMITTY.

---

## Configuring PVCs

**Note:** You can configure the 64-bit/66MHz PCI ATM MMF Adapter to use PVCs without configuring SVCs.

To configure the 64-bit/66MHz PCI ATM MMF Adapter to use PVCs, do the following:

1. At the AIX command prompt, type:

```
smitty atmpvc
```

and press Enter.

2. To add PVCs for internet protocol (IP) on an ATM Network, select **Add a PVC for IP over an ATM Network**.
3. If you want to change a value in the Add a PVC for IP over an ATM Network screen, use the following instructions:

- PVC Description (optional field)
- VPI:VCI

Type the following, where x equals a number from 0 to 1023.

```
0:x
```

and press Enter.

**Note:** The virtual path identifier (VPI) must be 0. The valid range for the virtual channel identifier (VCI) is determined by the number of virtual channels (VCs) supported by the switch and the number of VCs reserved for PVC connection.

- Network Interface

Type `at0` and press Enter.

- Destination IP Address

If you set the Automatically Discover Destination IP Address field to no, type the dotted decimal IP address (for example, 162.62.41.96) of the destination end station (ATM-attached host or gateway). Press Enter.

- Automatically Discover Destination IP Address

Select yes or no and press Enter.

- LLC Encapsulation

LLC Encapsulation determines whether Logical Link Control/Subnetwork Access Protocol (LLC/SNAP) or null encapsulation is used on the PVC. Select yes or no, and press Enter.

4. When the Command status in the Command Status screen changes from running to OK, press F3 to return to the PVCs for IP over an ATM Network screen.
5. To verify that the configuration is correct, select **List All PVCs for IP Over an ATM Network**.
6. When the Command status in the Command Status screen changes from running to OK, press F3 to return to the PVCs for IP over an ATM Network menu.

7. If you need to make changes, continue with the next step; otherwise, press F10 to exit SMITTY.
8. From the PVCs for IP over an ATM Network menu, select **Change / Show Characteristics of a PVC for IP over an ATM Network**.
9. From the list of Available Interfaces, select **at0**.
10. If necessary, change values in the Change / Show Characteristics of a PVC for IP over an ATM Network screen, and press Enter.
11. When the Command status in the Command Status screen changes from running to OK, press **F10** to exit SMITTY.

---

## Removing the ATM 155 Software

To remove the ATM 155 software, do the following:

1. Log in to the AIX operating system as root user.
2. At the AIX command prompt, type:  

```
smitty inet
```

  
and press Enter.
3. From the Network Interface Selection menu, select **Remove a Network Interface**.
4. From the Available Network Interfaces list, select **at0**.
5. When the Command status in the Command Status screen changes from running to OK, press **F10** to exit SMITTY.
6. At the AIX command prompt, type:  

```
smitty atm_adpt
```

  
and press Enter.
7. From the Adapter menu, select **Remove an ATM Adapter**.
8. From the ATM Adapter list, select **at0**.
9. In the Remove an ATM Adapter screen, set KEEP definition in database to no, and press Enter.
10. When removal is complete and the Command status changes from running to OK, press F10 to exit SMITTY.
11. At the AIX command prompt, type:  

```
smitty install
```

  
and press Enter.
12. From the Software Installation and Maintenance menu, select **Maintain Installed Software**.
13. From the Maintain Installed Software menu, select **Remove Software Products**.
14. In the Remove Software Products screen:
  - Type the SOFTWARE name, `devices.pci.14106001`
  - To PREVIEW only, select no.
  - To REMOVE dependent software, select yes.

- For DETAILED output? Select yes or no.
15. The ARE YOU SURE? screen displays:
    - To continue to remove the software, press Enter.
    - To cancel the uninstallation process, press F3.
  16. When removal is complete and the Command status in the Command Status screen changes from running to OK, press F10 to exit SMITTY.



---

## Chapter 4. Managing the Network

This chapter provides information to assist in creating and maintaining ATM networks.

---

### ATM Connections

ATM networks use a virtual path identifier (VPI) and a virtual channel identifier (VCI). VPI and VCI together identify connections in the ATM network. A VPI:VCI pair defines a path between two nodes in an ATM network. The VPI field occupies 1 byte in the ATM cell's 5-byte header, while the VCI field occupies 2 bytes in the ATM cell's 5-byte header.

For the 64-bit/66MHz PCI ATM MMF Adapter, the value of VPI must be 0. The VCI value can be between 0 and 127 decimal.

Although not required, VPI:VCI values are typically assigned symmetrically, that is, the same values are reserved in both directions across the link. A *link* is the physical medium of transmission, for example, a telephone wire or microwave beam. A *link connection* includes the physical medium for transmission, the protocol, associated devices and programming. A link connection is both logical and physical.

More than one virtual channel (VC) can be set up on the same link, but the VPI:VCI must be different for each connection on the link. A permanent virtual channel (PVC) is a static connection between two end stations and the ATM network. The PVC is created by selecting a physical path from the end station through the switches to the other end station. VPI:VCIs are assigned to establish the connection between the two end stations. The PVC must be configured in each end station and in all switches included in the connection.

An ATM switch automatically performs the following functions:

- Recognizes the source of the cell
- Changes VPI:VCI
- Determines the destination of the cell
- Transmits the cell to its destination

---

### TCP/IP over ATM

Each ATM network interface can have an assigned IP (internet protocol) address. This assigned network interface can have VPI:VCIs associated with it. This allows a TCP/IP host, identified by its IP address, to communicate with multiple TCP/IP hosts on the ATM network.

If your host has more than one IP address, (for example, one ATM interface and one token-ring interface), you must add one network interface for each IP address. The 64-bit/66MHz PCI ATM MMF Adapter supports multiple network interfaces.

---

## Configuring with PVCs

PVCs in ATM-attached hosts, gateways, and switches must be configured by users. For environments requiring the transfer of several protocols over the same VCI or support for inverse ARP (address resolution protocol) requests, LLC (logical link control), encapsulation is provided. If LLC support is enabled, the system issues inverse ARP requests on the VPI:VCI connection to automatically discover the destination's IP address. This request is issued every minute until the destination IP address is found. After the destination IP address is found, inverse ARP requests are issued every 15 minutes to verify that the connection has not changed. If automatic destination address discovery by inverse ARP is either declined or not supported at the destination, the destination IP address must be specified.

---

## Networking with ATM SVCs

Networking with ATM SVCs (switched virtual circuits) is different from networking with ATM PVCs. PVCs are created by users during configuration of ATM-attached hosts, gateways, and switches. These static connections remain established until they are removed by configuration changes. To establish complete connectivity, a connection must be configured and maintained from each node to every other node. This process can become labor-intensive as the number of connections grows rapidly with the addition of nodes. Such complexity is avoided by using SVCs.

An IP subnet using SVCs consists of an ATM switch, an ARP server, and ARP clients. During network initialization, endpoints automatically open signaling channels to obtain their 20-byte ATM address from the switch. Using the ARP server ATM address provided by the user at the time of configuration, clients open a connection with the subnet's ARP server and register both their IP and ATM addresses.

**Note:** Each subnet requires one ATM ARP server. When a client station needs to transmit to another station, the ARP server is called. If the destination's IP address is registered with the server, the destination's ATM address is resolved. The caller now has the destination ATM address and will request a connection to that station through the ATM switch. The switch creates a VPI:VCI connection from the caller to the destination.

---

## Changing ATM Adapter Characteristics

The 64-bit/66MHz PCI ATM MMF Adapter characteristics are automatically set during system boot, and these settings provide optimum performance. If you are an experienced user and want to change the adapter characteristics, use the following instructions:

To change the default ATM adapter characteristics, do the following:

1. At the AIX command prompt, type:

```
smitty atm_adpt
```

and press Enter.

2. From the Adapter menu, select **Change / Show Characteristics of an ATM Adapter**.
3. From the ATM Adapter list, select **atm0**.
4. Change any values in the Change / Show Characteristics of an ATM Adapter screen and press Enter.
  - Device name
    - atm0 (read-only)
  - Description
    - 64-bit/66MHz PCI ATM MMF Adapter
  - Status
    - Defined (read-only)
  - Location
    - 00-01 (read-only)
  - Enable ALTERNATE ATM MAC address
    - Set this characteristic to yes to enable the ATM media access control (MAC) address that you specify in the ALTERNATE ATM MAC address field.
  - ALTERNATE ATM MAC address
    - Type the MAC address in hexadecimal format (for example, 0x0000D10008ED).

**Note:** Alternate MAC Address: To facilitate an easy swap of ARP servers or server adapters, the user can specify an alternate MAC address. Because an endpoint's ATM address is partially derived from the adapter's MAC address, changing an adapter in an endpoint changes that station's ATM address.

If an ARP server adapter is changed, it is not necessary to change the ARP server ATM address in each ARP client. The MAC address of the previous configuration can be entered as the alternate MAC address of the new adapter. Each MAC addresses within a network, however, must be unique.

- ATM Adapter PDU Size:
    - ATM Adapter PDU (Protocol Data Unit) Size field specifies the maximum packet size that the IP stack generates for the ATM interface.
    - Do not change the default value of 9180 unless another PDU size has been configured and is used by all other hosts and routers in the IP subnet.  
To see the range of valid values for this setting, press F4.
5. When the Command status in the Command Status screen changes from running to OK, press F3.
  6. To exit SMITTY, press F10.



---

## Appendix A. Communications Statements

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

---

### Federal Communications Commission (FCC) Statement

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from authorized dealers. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

- International Business Machines Corporation
- New Orchard Road
- Armonk, New York 10504
- Telephone: (919) 543-2193



Tested to Comply  
With FCC Standards

FOR HOME OR OFFICE USE

---

## European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

---

## International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

---

## United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

---

## Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe B est conform à la norme NMB-003 du Canada.

---

## Canadian Department of Communications Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

---

## VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。  
取扱説明書に従って正しい取り扱いをして下さい。

The following is a summary of the VCCI Japanese statement in the box above.

This product is a Class B Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). This product is aimed to be used in a domestic environment. When used near a radio or TV receiver, it may become the cause of radio interference. Read the instructions for correct handling.

---

## Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.



---

## Appendix B. Notices

This information was developed for products and services offered in the U.S.A.

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

The manufacturer may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the manufacturer.

**The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: THIS MANUAL IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.**

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. The manufacturer may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Information concerning products made by other than the manufacturer was obtained from the suppliers of those products, their published announcements, or other publicly available sources. The manufacturer has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to products made by other than the manufacturer. Questions on the capabilities of products made by other than the manufacturer should be addressed to the suppliers of those products.



---

## Appendix C. Troubleshooting and Diagnostics

If your 64-bit/66MHz PCI ATM MMF Adapter is not functioning properly, do the following:

1. Run the diagnostics utility outlined in this Appendix.
2. Attempt to resolve problem using the steps below in "Troubleshooting".
3. Contact your service representative.

---

### Diagnostics

To run the 64-bit/66MHz PCI ATM MMF Adapter diagnostics utility, do the following:

1. Start AIX, and log in as root user.
2. To run the diagnostic utility type the following at the AIX prompt and press Enter.  
`diag -d atm0`
3. From the DIAGNOSTIC MODE SELECTION screen, select **System Verification** and press Enter.
4. Follow the instructions on the screen.

---

### Troubleshooting

If diagnostics pass and your 64-bit/66MHz PCI ATM MMF Adapter is not functioning, do the following:

1. Refer to your system unit documentation to disconnect power cables and remove covers.
2. Disconnect and reconnect all 64-bit/66MHz PCI ATM MMF Adapter cables.
3. Remove and reseat the adapter.
4. Install the 64-bit/66MHz PCI ATM MMF Adapter in a different slot if one is available.
5. After completing steps 1 through 4, refer to your system unit documentation to reassemble your system unit and reconnect the power cord.
6. Reread the software instructions in "Chapter 3. Configuring the ATM 155 Software" on page 7. Be sure the software settings are correct.
7. If your 64-bit/66MHz PCI ATM MMF Adapter still does not function, call your service representative.



---

## Appendix D. Product Features and Specifications

Following is an overview of the 64-bit/66MHz PCI ATM MMF Adapter features and a list of product specifications.

---

### Features

The 64-bit/66MHz PCI ATM MMF Adapter for AIX provides direct access to ATM networks, and dedicated 155 Mbit/sec full-duplex connection using PVCs or SVCs while enabling TCP/IP to run over an ATM network. The adapter also supports communication with devices located on an ATM network or bridged to a token ring, Ethernet, or other LAN.

The following list summarizes the features of the 64-bit/66MHz PCI ATM MMF Adapter:

- 64-bit PCI bus master
- Direct memory access (DMA)
- Dedicated 155 Mbit/sec full-duplex connection
- TCP/IP support
- SVC and PVC support
- Ease of installation and setup through a graphical user interface
- ATM adaptation layer (AAL) 5 support
- AIX Version 4.3.3, as well AIX Version 5.1.0, and later device driver
- ATM user network interface (UNI 3.0 and 3.1) featuring scalability for present and future network requirements

## Specifications

The adapter complies with applicable ATM Forum and PCI bus specifications.

### Environment

<b>Power dissipation</b>	Maximum 8 W
<b>Power VCC</b>	4.75 to 5.25 V
<b>Operating temperature</b>	10 to 60 °C
<b>Humidity</b>	8 to 80% noncondensing

### PCI Interface

<b>Size</b>	6.2" x 3.0" single-slot adapter
<b>Bus master</b>	64-bit bus master capability

---

## Readers' Comments — We'd Like to Hear from You

64-bit/66MHz PCI ATM MMF Adapter  
Installation and Using Guide

Publication No. SA23-1269-00

Overall, how satisfied are you with the information in this book?

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Overall satisfaction	<input type="checkbox"/>				

How satisfied are you that the information in this book is:

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Accurate	<input type="checkbox"/>				
Complete	<input type="checkbox"/>				
Easy to find	<input type="checkbox"/>				
Easy to understand	<input type="checkbox"/>				
Well organized	<input type="checkbox"/>				
Applicable to your tasks	<input type="checkbox"/>				

Please tell us how we can improve this book:

Thank you for your responses. May we contact you?  Yes  No

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

---

Name

---

Address

---

Company or Organization

---

Phone No.

**Readers' Comments — We'd Like to Hear from You**  
SA23-1269-00

Cut or Fold  
Along Line

Fold and Tape

**Please do not staple**

Fold and Tape



NO POSTAGE  
NECESSARY  
IF MAILED IN THE  
UNITED STATES

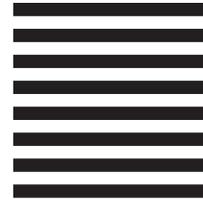
---

# **BUSINESS REPLY MAIL**

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

Information Development  
Department H6DS-9561  
11400 Burnet Road  
Austin, TX 78758-3493



Fold and Tape

**Please do not staple**

Fold and Tape

SA23-1269-00

Cut or Fold  
Along Line



Part Number: 09P2181



Printed in the United States of America  
on recycled paper containing 10%  
recovered post-consumer fiber.

SA23-1269-00



(1P) P/N: 09P2181

