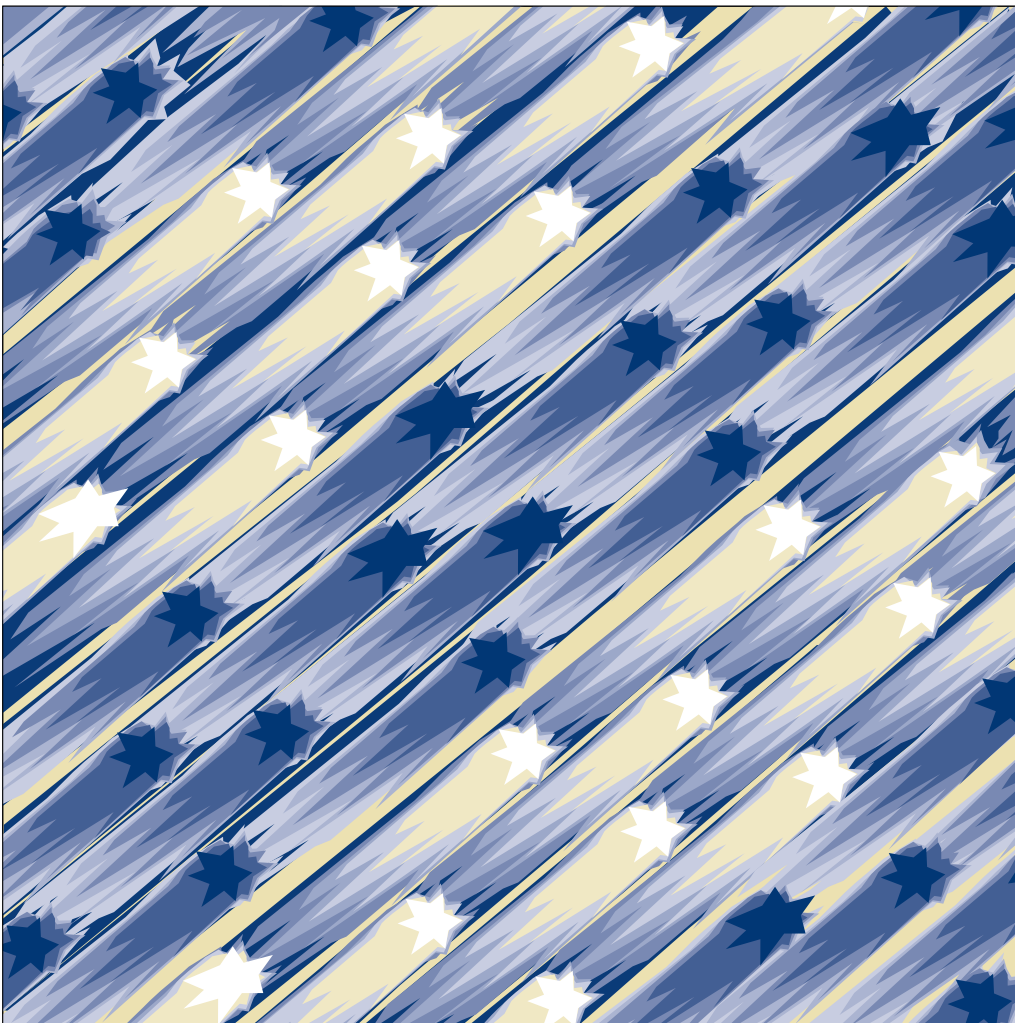


8265 Nways ATM Switch



# Media Module Reference Guide





8265 Nways ATM Switch



# Media Module Reference Guide

**Note!**

Before using this information and the product it supports, be sure to read the general information under Appendix D, "Notices" on page 137.

**Second Edition (January 1998)**

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## About This Book

This book describes how to install and configure ATM media modules in an IBM 8265 Nways ATM Switch.

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## Who Should Use This Book

This book is intended for the following people at your site:

- ATM network administrator
- ATM network operator
- Hardware installer.

---

## How To Use This Book

1. Before starting to install any module, familiarize yourself with the basic installation and configuration procedures in "Common Procedures" on page 1.
2. Proceed to the section that covers the module you are installing.

---

## Prerequisite Knowledge

To understand the information presented in this book, you should be familiar with:

- Features and characteristics of the IBM ATM Control Point and Switch module, as described in the *IBM 8265 Nways ATM Switch: Installation Guide*, SA33-0441 and the *IBM 8265 Nways ATM Switch: User's Guide*, SA33-0456.
- Principles of asynchronous transfer mode (ATM) technology
- ATM Forum UNI Specification V3.0, V3.1 and V4.0.
- ATM Forum PNNI Specification V1.0.

---

## Where to Find More Information

Refer to the documentation listed in the "Bibliography" on page 139.

### World Wide Web

You can access the latest news and information about IBM network products, customer service and support, and microcode upgrades via the Internet, at the URL:

<http://www.networking.ibm.com>



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## Common Procedures

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## Common Procedures

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## Chapter 1. Basic Installation Procedures

Before following the specific installation procedures for your ATM media module, you should be familiar with the following basic installation procedures that you will use for all ATM media modules:

- How to unpack an ATM media module
- How to insert a module in the 8265 switch
- How to cable and connect a module.

---

### Unpacking an ATM Media Module

This section provides guidelines for unpacking ATM media module components.

#### Precautions

Take the following precautions when unpacking an ATM media module or other related components:

- Do not remove the component from its anti-static shielding bag until you are ready to use it. This avoids the possibility of having electrostatic discharge damage static-sensitive devices on the component.
- When possible, handle the component by the faceplate.
- Always use a foot strap and grounded mat or wear a grounded static discharge wrist strap whenever you inspect or handle a component. Or else, be sure to touch a grounded rack or another source of ground **before** handling it.
- Ensure that you have a clean surface available on which to place the components.

### Unpacking Module Components

To unpack ATM media module components, follow these steps:

- **1** Verify that you received the correct components by checking the model number listed on the side of the shipping cartons against the model numbers you ordered.
- **2** Remove the ATM media module components from their shipping cartons.
- **3** Remove the components from their anti-static bags and inspect them for damage. Always handle them by the faceplate being careful not to touch the internal elements.

If any component appears to be damaged:

- Put it back in the anti-static bag,
- Put the bag back into the shipping carton,
- Contact your local IBM dealer.

**I/O Cards:** Be sure to keep the screws that come with each I/O card as you will need them to install the cards on the motherboard.

### Suggestions

- Keep the shipping carton and the anti-static shielding bags in which the components were delivered in case you later want to repackage them for storage or shipment.
- Record the serial numbers of the ATM media module components and other information about the modules in your 8265 switch in the ATM Cabling Charts in the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide*.



---

## Inserting a Module in the 8265 ATM Switch

This section describes how to mount an ATM media module in the 8265 ATM Switch.

### Notes:

1. All ATM media modules are **hot-pluggable**, that is you can install the ATM media module in an 8265 switch either when the switch is running or turned OFF.
2. Before installing an ATM media module in an 8265 ATM Switch, make sure that a CPSW module is installed in slots 9-10 or 11-12, and that a configuration console has already been attached and configured.
3. The following example describes the procedure for a single-slot ATM media module. The procedure for 2-slot and 3-slot modules is identical.

To install an ATM media module in an 8265 switch, follow these steps:

1. Locate a valid empty slot in positions 1 to 8 or 12 to 17. If necessary, remove the slot cover panel to expose an empty slot.  
**Note:** The valid slot requirements for each type of module are noted in the installation instructions for that module.
2. Make sure that the slot to be used is in ISOLATED mode by entering the following command from the configuration console:  

```
SET MODULE slot ISOLATED
```

where *slot* specifies the number of the slot to be used. For more information, see the *8265 User's Guide*.

## Common Procedures

- 3** Insert the module into the slot as shown in Figure 1, matching the top and bottom board guides as you slide the module cleanly into place (by pressing evenly on the top and bottom of the faceplate). Do not attempt to push the module all the way into the 8265 switch until you have verified that the top and bottom module ejectors are OPEN (see Figure 2 on page 7.)

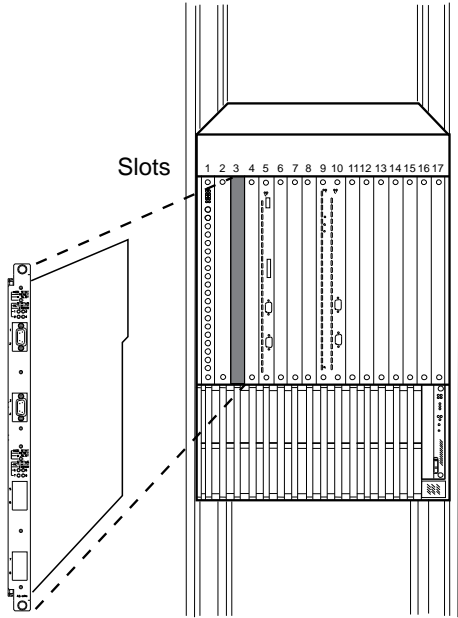


Figure 1. Inserting the Module in an 8265 ATM Switch

- \_\_\_ **4** Close the top and bottom ejectors simultaneously. This secures the module.

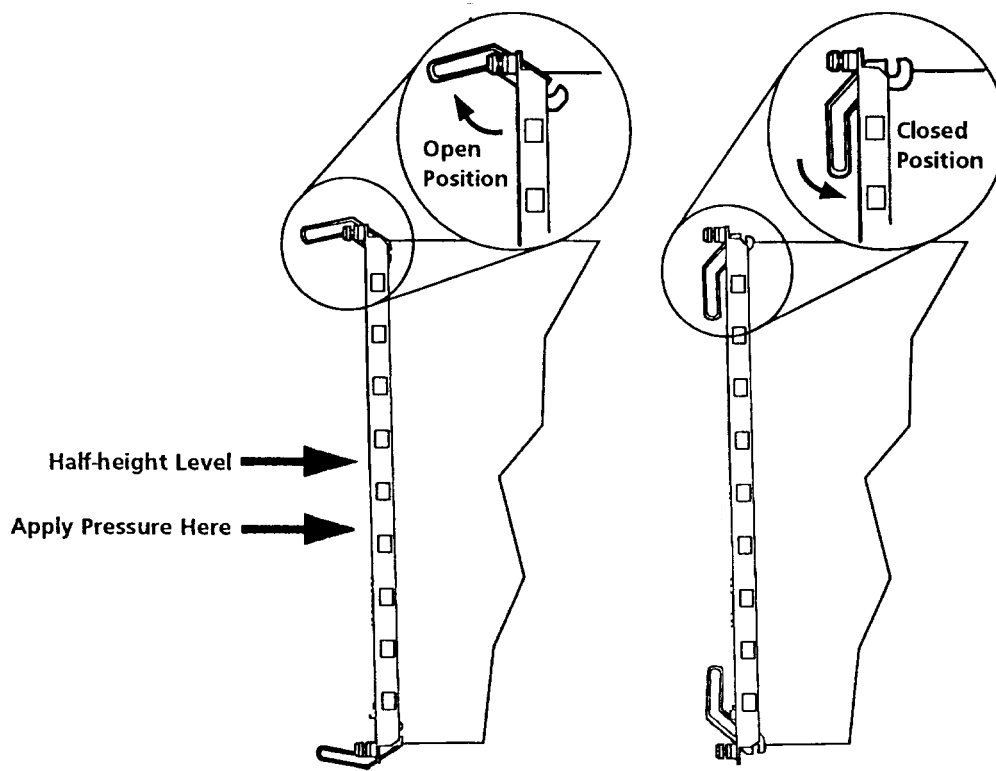


Figure 2. 8265 ATM Switch Module Ejectors

- \_\_\_ **5** The Module Status LED should light (Reset) briefly, and then turn OFF. After a few seconds, other LEDs may also light ON if the slot was previously configured for the same type of ATM media module.
- \_\_\_ **6** Fasten the spring-loaded screws on the front panel of the module to the 8265 switch, using your fingers. Do not overtighten.

### Cabling and Connecting to Devices

This section provides instructions and guidelines for attaching cables between ATM ports and ATM devices (such as switches, servers, personal computers, and workstations).

#### Cabling Guidelines

Remember these tips when connecting cables:

- Avoid stretching and bending the cables too much.
- Avoid routing copper cables near potential sources of electromagnetic interference, such as motorized devices and fluorescent lights.
- Avoid bending fiber cabling tighter than the cable's specified bend radius (see cable specifications in the *8265 Planning and Site Preparation Guide*).
- Avoid trip hazards by routing the cables away from aisles and other areas where people walk. If such routes cannot be avoided, use floor cable covers or similar material to secure and protect the cables.
- Be sure that the cables connected to an ATM media module are supported so that the cable connectors are not excessively strained. The cable management tray (orderable separately) helps prevent strain on the cables.

#### Connecting Devices to ATM Ports

You can connect devices to the ATM ports either through the building wiring or by a direct connection.

**Direct Cabling:** To cable an ATM device directly to an ATM media module follow these steps:

- \_\_\_ **1** Look at the cabling chart provided by your network planner to determine how the user device should be connected to the network.
- \_\_\_ **2** Connect the cables between the ATM media module and the user device as indicated on the cabling chart.
- \_\_\_ **3** Label the cables, following your enterprise's procedures for cable labeling.

**Via Building Wiring:** To connect an ATM device to an ATM media module via building wiring, follow these steps:

- **1** Look at the cabling chart provided by your network planner to determine how the user device should be connected to the network.
- **2** In the work area, connect one end of the device cable to the ATM connector on the user device (see Figure 3).

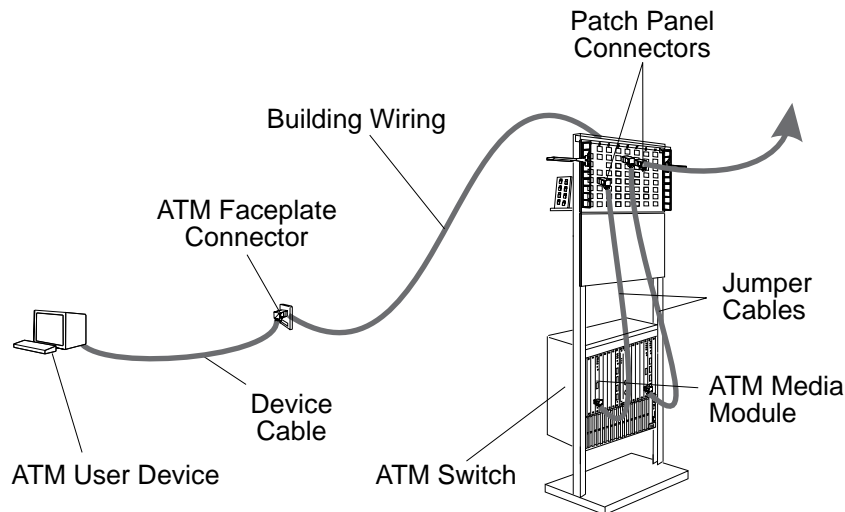


Figure 3. Connecting Devices Via Building Wiring

- **3** Connect the other end of the device cable to the ATM faceplate connector where the building wiring terminates.
- **4** Label the faceplate if it does not already have a cable label. Follow your enterprise's procedures for cable labeling. If there is more than one wiring closet on a floor, record on the same line, the wiring closet identifier or location and the cable identifier.
- **5** On the patch panel, connect a jumper cable to the appropriate connector on the patch panel (or other equipment where the building wiring terminates).
- **6** Connect the other end of the jumper cable to a port on the ATM media module.
- **7** Label the connector on the patch panel (or other equipment where the building wiring terminates).

## Common Procedures

---

## Chapter 2. Basic Configuration Steps

Before following the specific configuration steps for your module, you should be familiar with the following basic configuration steps that you will use frequently when working with ATM media modules:

- Connecting Modules to the Network
- Enabling Ports
- Defining Port Settings
- Displaying and Saving Configuration Settings

---

### Connecting Modules to the Network

When you install an ATM media module, the module is set by default to ISOLATED and all of its ports are set to DISABLED. When a module is isolated, no network activity takes place on it and it cannot be accessed by the network. This is a security measure that protects your ATM network from unauthorized access and module malfunction.

To establish the module's connection to the network, enter the following command at the ATM console prompt:

```
8265ATM> SET MODULE s1ot CONNECTED
```

where `s1ot` specifies the slot number of the ATM media module.

The module's ports will not be enabled. This allows you to configure individual ports before enabling them.

### Enabling Ports

#### Enabling Selected Ports

To enable **individual** ports using the current values (either the default values if the module has not been used, or the previous values entered), enter the following command:

```
8265ATM> SET PORT slot.port ENABLE
```

#### Enabling All Ports

To enable **all** ports using the current values (either the default values if the module has not been used, or the previous values entered), enter the following command:

```
8265ATM> SET MODULE slot CONNECTED ENABLE
```

---

### Defining Port Settings

#### Example

The following configures a UNI port with normal ILMI address registration.

```
8265ATM> set port 3.1 ENABLE UNI
```



---

## Displaying and Saving Configuration Settings

### Displaying Configuration Settings

To display status information about an ATM media module, enter one of the following commands:

- SHOW MODULE
- SHOW MODULE VERBOSE
- SHOW PORT
- SHOW PORT VERBOSE

For example, to display configuration information about the ATM media module in slot 2, you would enter the following command:

```
8265ATM> show module 2 verbose [ENTER]
8265ATM>
```

The following example shows how to display detailed information about the ports of the ATM media module in slot 1:

```
8265ATM> show port 1.all verbose
8265ATM>
```

For more information on the SHOW MODULE and SHOW PORT commands, see the *8265 Command Reference Guide*.

### Saving Configuration Settings

After configuring ATM media module and port settings, save your configuration changes by entering the SAVE MODULE\_PORT command.

```
8265ATM> save module_port
```



---

## 4-Port 155 Mbps Module

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## Chapter 3. Installing the 4-Port 155 Mbps Module

This chapter contains step-by-step procedures for installing and configuring a 4-port 155 Mbps module in an 8265 switch.

### Module Front Panel

Refer to Figure 4 when installing and configuring the 155 Mbps module.

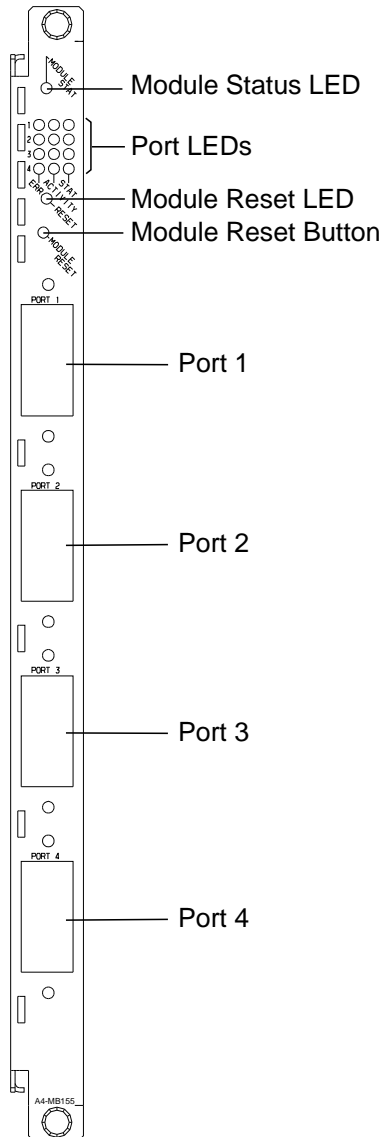


Figure 4. 155 Mbps Module Front Panel

## Installation Procedure

To install an A4-MF155 or A4-MB155 module in an 8265 switch follow these steps:

- 1 Unpack the module and any I/O cards you have received, as described in “Unpacking an ATM Media Module” on page 3. The shipping group contains:

A4-MF155 (4-port MMF)	A4-MB155 (4-port Flex)
<ul style="list-style-type: none"> <li>• One module.</li> </ul>	<ul style="list-style-type: none"> <li>• One module motherboard</li> <li>• Up to 4 I/O cards to be installed on the motherboard. With each I/O card, you should also receive:                             <ul style="list-style-type: none"> <li>– Four screws to secure the I/O card to the motherboard</li> </ul> </li> </ul>

- 2 (A4-MB155 module only) Install your I/O cards on the module motherboard, as described in Chapter 4, “Installing I/O Cards on the 4-Port 155 Mbps Flex Module” on page 21.

**Using 8260 I/O Cards**

155 Mbps I/O cards from the 8260 155 Mbps modules (Feature Codes 8800, 8801, and 8802) **may only be installed as ports 1, 2, and 3** on the 8265 155 Mbps Flex Module module. Only **8265** 155 Mbps I/O cards (FC 6580, 6581, and 6582) can be installed as port 4.

- 3 Insert the module in the 8265 switch as described in “Inserting a Module in the 8265 ATM Switch” on page 5. The 155 Mbps module can be inserted in any of slots 1-8 and 12-17.  
 Check that the Reset LED flashes ON briefly and then turns OFF. If not, refer to “Module LED Error Diagnosis” on page 110 to diagnose and correct the problem before proceeding to the next step.  
**Important:** It is normal for the port error LEDs to remain ON:
  - If no cables are attached to the port
  - If no I/O card has been installed for that port (A4-MB155 Flex module only).
- 4 Attach the cables that connect the module to another ATM device, as described in “Cabling and Connecting to Devices” on page 8.
- 5 Record the module's installation and cabling information in the ATM Cabling Charts provided in the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide*.
- 6 Proceed with the steps in “Configuration Procedure” on page 19.

---

## Configuration Procedure

To configure an A4-MF155 or A4-MB155 module in an 8265 switch follow these steps:

- \_\_\_ **1** Connect the module to the ATM network with the command:

**SET MODULE slot CONNECTED**

as described in “Connecting Modules to the Network” on page 11.

Check that the module status LED lights ON. If not, refer to “Module LED Error Diagnosis” on page 110 to diagnose and correct the problem before proceeding to the next step.
- \_\_\_ **2** Set the characteristics of each port using the **SET PORT** command, as described in “Defining Port Settings” on page 12.

155 Mbps ports may be configured as UNI, IISP, PNNI, AUTO, VOID, or PUBLIC\_UNI ports. In addition to the standard ATM port parameters, the CLOCK, FRAME\_FORMAT, and FLOW\_CONTROL parameters may also be defined on 155 Mbps ports. Use of these parameters is described in the “Port-Specific SET PORT Parameters” appendix in the *IBM 8265 Nways ATM Switch: Command Reference Guide*.

**Note:** To view the current port settings, use the **SHOW PORT VERBOSE** command (see “Displaying Configuration Settings” on page 13).
- \_\_\_ **3 (optional)** Set up VPC links using the **SET VPC\_LINK** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **4 (optional)** Set up PVCs using the **SET PVC** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **5** Enable the ports that you have configured, using either the **SET PORT** or the **SET MODULE** command, as described in “Enabling Ports” on page 12.
- \_\_\_ **6** Check that all LEDs are functioning correctly:

  - The module status LED should be ON.
  - The port status LED should be ON
  - The port activity LED should be ON when there is ATM traffic.
  - The port error LED should be OFF unless no cable is attached or no I/O card (A4-MB155 Flex module only) is installed for that port.
  - All other LEDs on the module faceplate should be OFF.

If any LEDs are not functioning as indicated, refer to Chapter 5, “Troubleshooting for 155 Mbps Modules” on page 23 to diagnose and correct the problem before proceeding to the next step.
- \_\_\_ **7** Save the port and module configuration settings with the command:

**SAVE MODULE\_PORT**

as described in “Saving Configuration Settings” on page 13.

For full information on all ATM commands, see the *8265 Command Reference Guide*.



---

## Chapter 4. Installing I/O Cards on the 4-Port 155 Mbps Flex Module

---

### Installation Procedure

To install an I/O card on the A4-MB155 motherboard, follow these steps:

- \_\_\_ **1** If necessary, remove the two screws and faceplate that cover the port on the front panel of the motherboard. Put the screws and faceplate in a safe place.
- \_\_\_ **2** Loosen the two screws that attach the I/O card faceplate to the I/O card circuit board, so that the faceplate can move slightly while installing.
- \_\_\_ **3** Hold the I/O card so that its connector and screw holes are aligned over the connector and small metal posts on the motherboard (see Figure 5 on page 22). Then gently push the card forward (so that its port fits into the opening on the motherboard front panel) and down until you hear it click into the motherboard connector.
- \_\_\_ **4** Place two of the screws that come with the I/O card into the metal posts and tighten them with a screwdriver.
- \_\_\_ **5** Place the remaining two holes on the front panel and tighten them with a screwdriver. screws into their
- \_\_\_ **6** Retighten the two screws that attach the I/O card faceplate to the I/O card circuit board. This secures the I/O card on the motherboard.

**Note:** If you replace an I/O card after configuring the module has been configured (see “Configuration Procedure” on page 19) and then re-insert the module in the switch, the new I/O card is automatically configured with the settings of the previous card.

#### Using 8260 I/O Cards

155 Mbps I/O cards from the 8260 155 Mbps modules (Feature Codes 8800, 8801, and 8802) **may only be installed as ports 1, 2, and 3** on the 8265 155 Mbps Flex Module. The **8265** 155 Mbps I/O cards (FC 6580, 6581, and 6582) can be installed in **any** port position.

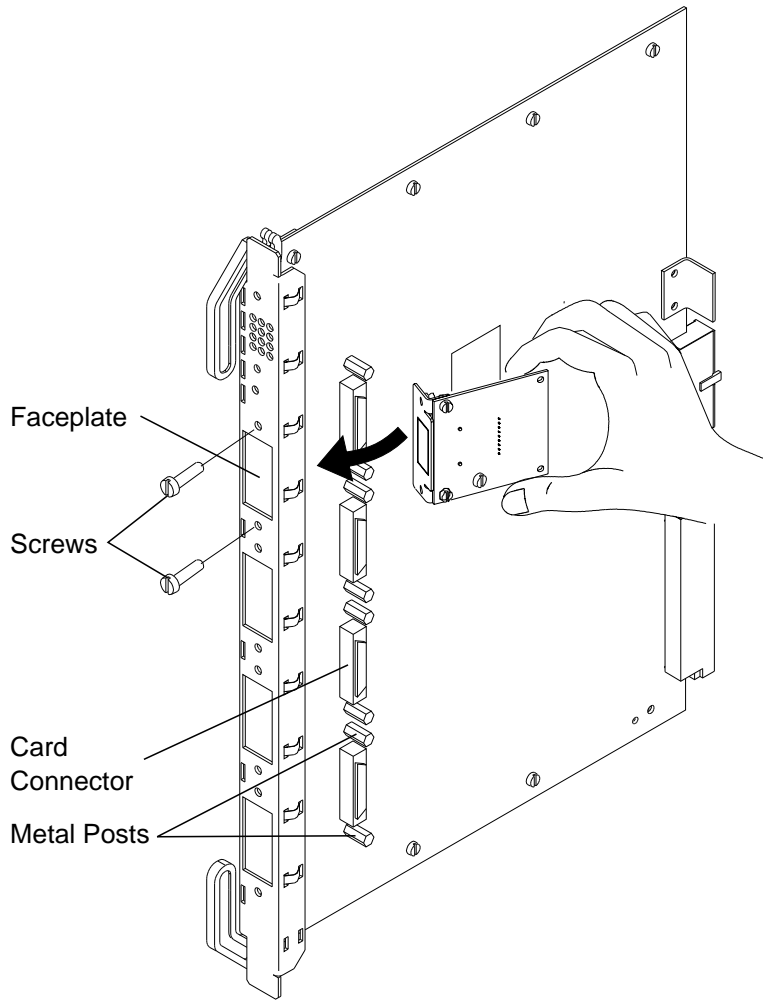


Figure 5. Installing an I/O Card on the 155 Mbps Module Motherboard

**CAUTION:**

When installing an I/O card on the motherboard, be careful not to touch its components. Always hold the card by the faceplate or by its edges as shown in Figure 5.

## Chapter 5. Troubleshooting for 155 Mbps Modules

Troubleshooting for the A4-MF155 and A4-MB155 modules is done using:

- The port and module LEDs on the module faceplate (see Figure 4 on page 17)
- The results displayed by the SHOW MODULE VERBOSE, SHOW PORT VERBOSE, and SHOW VPC\_LINK commands.

### First Test the LEDs

Before you start troubleshooting, check that all LEDs are working by pressing the LED Test button on the active Controller Module in the 8265 switch. All LEDs on the 155 Mbps module should light ON. If not, replace the module (see “Replacing an ATM Media Module” on page 131).

To diagnose problems with a 155 Mbps module:

- 1 Check whether the module LEDs indicate normal operation or not:

Table 1. A4-MF155 and A4-MB155 Module LED States

LED Name	Color	State	Meaning
MODULE STAT	Green	ON	Normal (module CONNECTED).
		OFF	Normal (module ISOLATED), else see “Module LED Error Diagnosis” on page 110.
RESET	Yellow	OFF	Normal (module not being reset).
		ON	Normal (module being reset), else see “Module LED Error Diagnosis” on page 110.
		Blinking	See “Module LED Error Diagnosis” on page 110.

- 2 Enter the SHOW MODULE VERBOSE command from the configuration console and check that the status messages are:

- Connected
- Hardware Okay
- Enable or Disable
- Normal

If any other status is displayed, see “SHOW MODULE Error Diagnosis” on page 113.

\_\_\_ **3** Check whether the port LEDs indicate normal operation or not:

<i>Table 2. A4-MF155 and A4-MB155 Port LED States</i>			
<b>LED Name</b>	<b>Color</b>	<b>State</b>	<b>Meaning</b>
STAT	Green	ON	Normal (port ENABLED).
		OFF	Normal (port DISABLED), else see "Port LED Error Diagnosis" on page 115.
		Blinking	See "Port LED Error Diagnosis" on page 115.
ACTIVITY	Yellow	ON	Normal (ATM cells being transmitted over the port).
		OFF	See "Port LED Error Diagnosis" on page 115.
ERR	Yellow	OFF	Normal.
		ON	Normal if no cable is attached or if the Flex module I/O card is missing, else see "Port LED Error Diagnosis" on page 115.

\_\_\_ **4** Enter the SHOW PORT VERBOSE or SHOW VPC\_LINK command from the configuration console and check that the status message for the port or VPC is one of the following:

- DOWN: Establishing \*
- DOWN: Configuring \*
- DOWN: Retrieving \*
- UP: Registering \*
- UP

If any other status is displayed, or if any of the transient statuses (marked \*) are displayed continuously, see "SHOW PORT / SHOW VPC\_LINK Error Diagnosis" on page 118.

**USA and Canada:** If the problem is not resolved after following the troubleshooting procedures outlined in this chapter, call toll-free 800-IBM-SERV for IBM support.

---

## Replacing a 155 Mbps I/O Card

As a result of diagnosing a problem on a 155 Mbps module, you may be directed to replace the I/O card. To replace an I/O card follow these steps:

- **1** Enter `SET MODULE slot ISOLATED` where `slot` is the slot number of the A4-MB155 module containing the I/O card. Then press Enter.
- **2** Remove the module from the chassis.
- **3** Unscrew the I/O card from the motherboard.
- **4** Install a new I/O card on the motherboard as described in Chapter 4, “Installing I/O Cards on the 4-Port 155 Mbps Flex Module” on page 21.
- **5** Re-insert the module into the chassis.
- **6** Enter `SET MODULE slot CONNECTED` where `slot` is the slot number of the module. Then press Enter.



---

## 622 Mbps Module

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---

## Chapter 6. Installing the 622 Mbps Module

This chapter contains step-by-step procedures for installing and configuring a 622 Mbps module in an 8265 switch.

---

### Module Front Panel

Refer to Figure 6 when installing and configuring the 622 Mbps module.

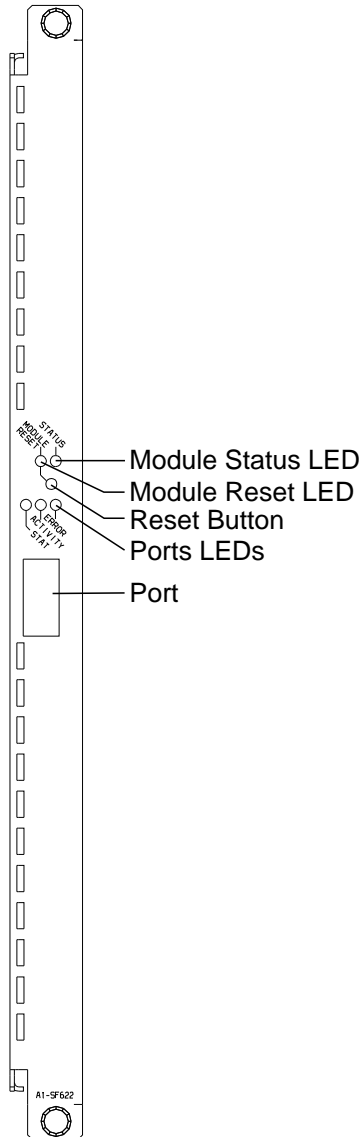


Figure 6. 622 Mbps Module Front Panel

---

## Installation Procedure

To install an A1-MF622 or A1-SF622 module in an 8265 switch follow these steps:

- \_\_\_ **1** Unpack the module as described in “Unpacking an ATM Media Module” on page 3. The shipping group contains:
  - One A1-MF622 or A1-SF622 module.
  
- \_\_\_ **2** Insert the module in the 8265 switch as described in “Inserting a Module in the 8265 ATM Switch” on page 5. The 622 Mbps module can be inserted in any of slots 1-8 and 12-17.  
Check that the Reset LED flashes ON briefly and then turns OFF. If not, refer to “Module LED Error Diagnosis” on page 110 to diagnose and correct the problem before proceeding to the next step.  
**Important:** It is normal for the port error LEDs to remain ON until cables are attached to the port.
  
- \_\_\_ **3** Attach the cables that connect the module to another ATM device, as described in “Cabling and Connecting to Devices” on page 8.
  
- \_\_\_ **4** Record the module's installation and cabling information in the ATM Cabling Charts provided in the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide*.
  
- \_\_\_ **5** Proceed with the steps in “Configuration Procedure” on page 31.

---

## Configuration Procedure

To configure an A1-MF622 or A1-SF622 module in an 8265 switch follow these steps:

- \_\_\_ **1** Connect the module to the ATM network with the command:

**SET MODULE slot CONNECTED**

as described in “Connecting Modules to the Network” on page 11.

Check that the module status LED lights ON. If not, refer to “Module LED Error Diagnosis” on page 110 to diagnose and correct the problem before proceeding to the next step.
- \_\_\_ **2** Set the characteristics of each port using the **SET PORT** command, as described in “Defining Port Settings” on page 12.

622 Mbps ports may be configured as AUTO, VOID, or PUBLIC\_UNI ports. In addition to the standard ATM port parameters, the DESCRAMBLE\_RCV\_PAYLOAD and SCRAMBLE\_XMT\_PAYLOAD parameters may also be defined on 622 Mbps ports. Use of these parameters is described in the “Port-Specific SET PORT Parameters” appendix in the *IBM 8265 Nways ATM Switch: Command Reference Guide*.

**Note:** To view the current port settings, use the **SHOW PORT VERBOSE** command (see “Displaying Configuration Settings” on page 13).
- \_\_\_ **3 (optional)** Set up VPC links using the **SET VPC\_LINK** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **4 (optional)** Set up PVCs using the **SET PVC** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **5** Enable the port using either the **SET PORT** or the **SET MODULE** command, as described in “Enabling Ports” on page 12.
- \_\_\_ **6** Check that all LEDs are functioning correctly:

  - The module status LED should be ON.
  - The port status LED should be ON
  - The port activity LED should be ON when there is ATM traffic.
  - The port error LED should be OFF unless no cable is attached to the port.
  - All other LEDs on the module faceplate should be OFF.

If any LEDs are not functioning as indicated, refer to Chapter 7, “Troubleshooting for 622 Mbps Modules” on page 33 to diagnose and correct the problem before proceeding to the next step.
- \_\_\_ **7** Save the port and module configuration settings with the command:

**SAVE MODULE\_PORT**

as described in “Saving Configuration Settings” on page 13.

For full information on all ATM commands, see the *8265 Command Reference Guide*.



## Chapter 7. Troubleshooting for 622 Mbps Modules

All troubleshooting for the 622 Mbps module is done using:

- The port and module LEDs on the module faceplate (see Figure 6 on page 29)
- The results displayed by the SHOW MODULE VERBOSE, SHOW PORT VERBOSE, and SHOW VPC\_LINK commands.

### First Test the LEDs

Before you start troubleshooting, check that all LEDs are working by pressing the LED Test button on the active Controller Module in the 8265 switch. All LEDs on the 622 Mbps module should light ON. If not, replace the module (see “Replacing an ATM Media Module” on page 131).

To diagnose problems with a 622 Mbps module:

- 1 Check whether the module LEDs indicate normal operation or not:

Table 3. A1-MF622 and A1-SF622 Module LED States

LED Name	Color	State	Meaning
MODULE STAT	Green	ON	Normal (module CONNECTED).
		OFF	Normal (module ISOLATED), else see “Module LED Error Diagnosis” on page 110.
MODULE RESET	Yellow	OFF	Normal (module not being reset).
		ON	Normal (module being reset), else see “Module LED Error Diagnosis” on page 110.
		Blinking	See “Module LED Error Diagnosis” on page 110.

- 2 Enter the SHOW MODULE VERBOSE command from the configuration console and check that the status messages are:

- Connected
- Hardware Okay
- Enable or Disable
- Normal

If any other status is displayed, see “SHOW MODULE Error Diagnosis” on page 113.

### 3 Check whether the port LEDs indicate normal operation or not:

LED Name	Color	State	Meaning
STAT	Green	ON	Normal (port ENABLED).
		OFF	Normal (port DISABLED), else see "Port LED Error Diagnosis" on page 115.
		Blinking	See "Port LED Error Diagnosis" on page 115.
ACTIVITY	Yellow	ON	Normal (ATM cells being transmitted over the port).
		OFF	See "Port LED Error Diagnosis" on page 115.
ERROR	Yellow	OFF	Normal.
		ON	Normal if no cable is attached, else see "Port LED Error Diagnosis" on page 115.

### 4 Enter the SHOW PORT VERBOSE or SHOW VPC\_LINK command from the configuration console and check that the status message for the port or VPC is one of the following:

- DOWN: Establishing \*
- DOWN: Configuring \*
- DOWN: Retrieving \*
- UP: Registering \*
- UP

If any other status is displayed, or if any of the transient statuses (marked \*) are displayed continuously, see "SHOW PORT / SHOW VPC\_LINK Error Diagnosis" on page 118.

**USA and Canada:** If the problem is not resolved after following the troubleshooting procedures outlined in this chapter, call toll-free 800-IBM-SERV for IBM support.

---

## 4-Port 100 Mbps Module

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## Chapter 8. Installing the 100 Mbps Module

This chapter contains step-by-step procedures for installing and configuring a 100 Mbps module in an 8265 switch.

### Using 8260 Modules in the 8265

See Appendix C, "Backward Compatibility with 8260 Modules" on page 135 before attempting to use an existing 8260 100 Mbps module in the 8265 switch.

## Module Front Panel

Refer to Figure 7 when installing and configuring the 100 Mbps module.

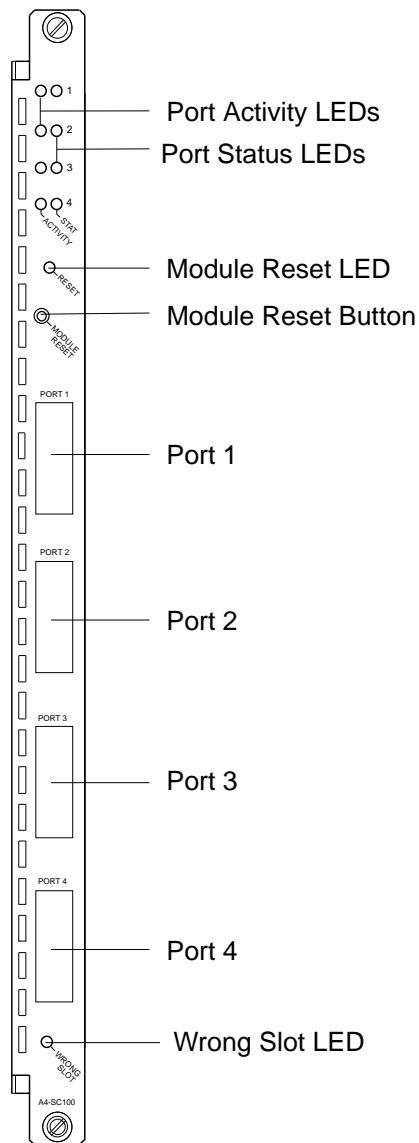


Figure 7. 100 Mbps Module Front Panel

---

## Installation Procedure

To install an A4-SC100 module in an 8265 switch follow these steps:

- \_\_\_ **1** Unpack the module as described in “Unpacking an ATM Media Module” on page 3. The shipping group contains:
  - One A4-SC100 module.
  
- \_\_\_ **2** Insert the module in the 8265 switch as described in “Inserting a Module in the 8265 ATM Switch” on page 5. **The 100 Mbps module can only be inserted in slots 1, 3, 5, and 7.**  
Check that the Reset LED flashes ON briefly and then turns OFF. If not, refer to “Module LED Error Diagnosis” on page 110 to diagnose and correct the problem before proceeding to the next step.
  
- \_\_\_ **3** Attach the cables that connect the module to another ATM device, as described in “Cabling and Connecting to Devices” on page 8.
  
- \_\_\_ **4** Record the module's installation and cabling information in the ATM Cabling Charts provided in the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide*.
  
- \_\_\_ **5** Proceed with the steps in “Configuration Procedure” on page 39.

---

## Configuration Procedure

To configure an A4-SC100 module in an 8265 switch follow these steps:

- \_\_\_ **1** Connect the module to the ATM network with the command:  
**SET MODULE slot CONNECTED**  
as described in “Connecting Modules to the Network” on page 11.
- \_\_\_ **2** Set the characteristics of each port using the **SET PORT** command, as described in “Defining Port Settings” on page 12.  
100 Mbps ports may be configured as UNI, IISP, PNNI, AUTO, VOID, or PUBLIC\_UNI ports.  
**Notes:**
  - a. Do not define more than 2 PNNI ports on the 100 Mbps module.
  - b. To view the current port settings, use the **SHOW PORT VERBOSE** command (see “Displaying Configuration Settings” on page 13).
- \_\_\_ **3 (optional)** Set up VPC links using the **SET VPC\_LINK** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **4 (optional)** Set up PVCs using the **SET PVC** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **5** Enable the ports that you have configured, using either the **SET PORT** or the **SET MODULE** command, as described in “Enabling Ports” on page 12.
- \_\_\_ **6** Check that all LEDs are functioning correctly:
  - The port status LED should be ON
  - The port activity LED should be ON when there is ATM traffic.
  - All other LEDs on the module faceplate should be OFF.

If any LEDs are not functioning as indicated, refer to Chapter 9, “Troubleshooting for 100 Mbps Modules” on page 41 to diagnose and correct the problem before proceeding to the next step.
- \_\_\_ **7** Save the port and module configuration settings with the command:  
**SAVE MODULE\_PORT**  
as described in “Saving Configuration Settings” on page 13.  
For full information on all ATM commands, see the *8265 Command Reference Guide*.



## Chapter 9. Troubleshooting for 100 Mbps Modules

All troubleshooting for the 100 Mbps module is done using:

- The port and module LEDs on the module faceplate (see Figure 7 on page 37)
- The results displayed by the SHOW MODULE VERBOSE, SHOW PORT VERBOSE, and SHOW VPC\_LINK commands.

### First Test the LEDs

Before you start troubleshooting, check that all LEDs are working by pressing the LED Test button on the active Controller Module in the 8265 switch. All LEDs on the 100 Mbps module should light ON. If not, replace the module (see “Replacing an ATM Media Module” on page 131).

To diagnose problems with a 100 Mbps module:

- 1 Check whether the module LEDs indicate normal operation or not:

Table 5. A4-SC100 Module LED States

LED Name	Color	State	Meaning
RESET	Yellow	OFF	Normal (module not being reset).
		ON	Normal (module being reset), else see “Module LED Error Diagnosis” on page 110.
		Blinking	See “Module LED Error Diagnosis” on page 110.
WRONG SLOT	Yellow	OFF	Normal.
		ON	The module is installed in an incorrect slot (1, 3, 5, 7) and no power is reaching the module.

- 2 Enter the SHOW MODULE VERBOSE command from the configuration console and check that the status messages are:

- Connected
- Hardware Okay
- Enable or Disable
- Normal

If any other status is displayed, see “SHOW MODULE Error Diagnosis” on page 113.

### 3 Check whether the port LEDs indicate normal operation or not:

<i>Table 6. A4-SC100 Port LED States</i>			
LED Name	Color	State	Meaning
STAT	Green	ON	Normal (port ENABLED).
		OFF	Normal (port DISABLED), else see "Port LED Error Diagnosis" on page 115.
		Blinking	See "Port LED Error Diagnosis" on page 115.
ACTIVITY	Yellow	ON	Normal (ATM cells being transmitted over the port).
		OFF	See "Port LED Error Diagnosis" on page 115.
ERR	Yellow	OFF	Normal.
		ON	See "Port LED Error Diagnosis" on page 115.

### 4 Enter the SHOW PORT VERBOSE or SHOW VPC\_LINK command from the configuration console and check that the status message for the port or VPC is one of the following:

- DOWN: Establishing \*
- DOWN: Configuring \*
- DOWN: Retrieving \*
- UP: Registering \*
- UP

If any other status is displayed, or if any of the transient statuses (marked \*) are displayed continuously, see "SHOW PORT / SHOW VPC\_LINK Error Diagnosis" on page 118.

**USA and Canada:** If the problem is not resolved after following the troubleshooting procedures outlined in this chapter, call toll-free 800-IBM-SERV for IBM support.

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# 8210 MSS Module

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## Chapter 10. MSS Server Module Guidelines

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### Installation

The MSS Server Module is a 2-slot module that can be installed on the 8265 switch **in slots 1, 3, 5, and 7.**

#### Using 8260 Modules in the 8265

See Appendix C, "Backward Compatibility with 8260 Modules" on page 135 before attempting to use an existing 8260 MSS Server Module in the 8265 switch.

---

### Documentation

For installation, configuration and troubleshooting instructions, refer to the MSS Server Module documentation:

- *Nways Multiprotocol Switched Services (MSS) Server Introduction and Planning Guide, GC30-3820.*
- *Nways Multiprotocol Switched Services (MSS) Server Module Setup and Problem Determination Guide, GA27-4141.*
- *Multiprotocol Switched Services (MSS) Server Setup and Problem Determination Guide, GA27-4140.*
- *Nways Multiprotocol Switched Services Server: Interface Configuration and Software User's Guide, SC30-3818.*
- *Nways Multiprotocol Switched Services Server: Configuring Protocols and Features, SC30-3819.*
- *Multiprotocol Switched Services (MSS) Server Service Manual, GY27-0354.*
- *Nways MAS/MRS/MSS Library, Configuration Program User's Guide for Nways Multiprotocol Access, Routing and Switched Services, GC30-3830.*
- *Nways Event Logging System Messages Guide, SC30-3682.*

**Note:** As of the time of publication of this guide, the documentation for the MSS Server Module describes its use in an IBM 8260 Hub, but has not been updated to describe its use in the 8265 switch.



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## 12-Port 25 Mbps Module

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## Chapter 11. Installing the 25 Mbps Module

This chapter contains step-by-step procedures for installing and configuring a 25 Mbps module in an 8265 switch.

### Using 8260 Modules in the 8265

See Appendix C, "Backward Compatibility with 8260 Modules" on page 135 before attempting to use an existing 8260 25 Mbps module in the 8265 switch.

## Module Front Panel

Refer to Figure 8 when installing and configuring the 25 Mbps module.

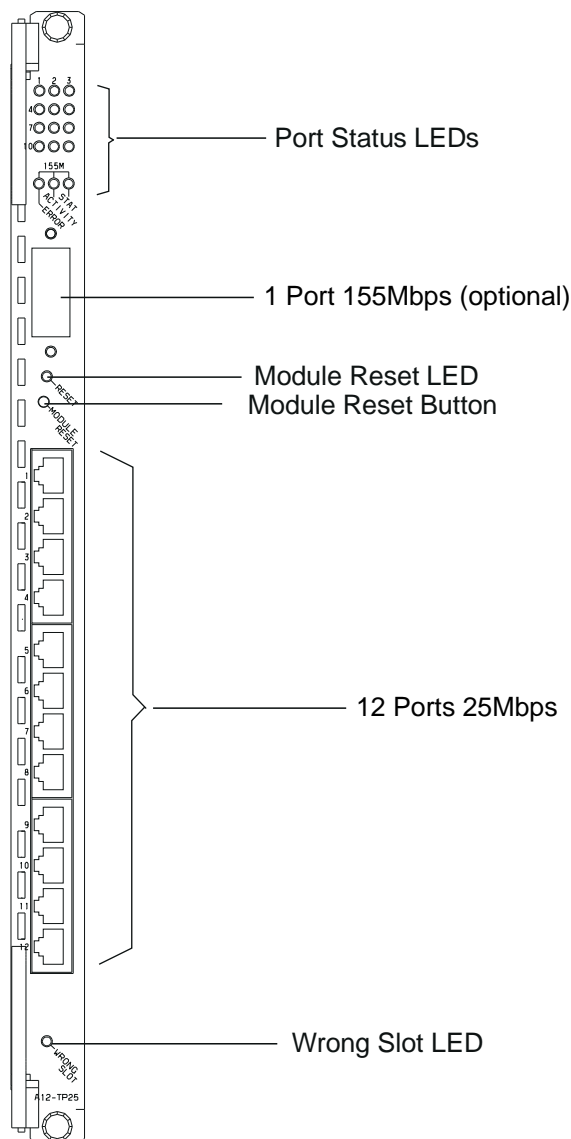


Figure 8. 25 Mbps Module Front Panel

---

## Installation Procedure

To install an A12-TP25 module in an 8265 switch follow these steps:

- \_\_\_ **1** Unpack the module (and the 155 Mbps I/O card, if you ordered one), as described in “Unpacking an ATM Media Module” on page 3. The shipping group should contain:

A12-TP25	A12-TP25 with 155 Mbps I/O Card
<ul style="list-style-type: none"> <li>• One module.</li> </ul>	<ul style="list-style-type: none"> <li>• One module motherboard</li> <li>• One I/O card to be installed on the motherboard.</li> </ul>

- \_\_\_ **2 (155 Mbps I/O Card only)** Install the I/O card on the module motherboard, as described in Chapter 12, “Installing a 155 Mbps I/O Card on a 25 Mbps Module” on page 53.

- \_\_\_ **3** Insert the module in the 8265 switch as described in “Inserting a Module in the 8265 ATM Switch” on page 5. **The 25 Mbps module can only be inserted in slots 1, 3, 5, and 7.**

Check that the Module Reset LED flashes ON briefly and then turns OFF. If not, refer to “Module LED Error Diagnosis” on page 110 to diagnose and correct the problem before proceeding to the next step.

- \_\_\_ **4** Attach the cables that connect the module to another ATM device, as described in “Cabling and Connecting to Devices” on page 8.

- \_\_\_ **5** Record the module's installation and cabling information in the ATM Cabling Charts provided in the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide*.

- \_\_\_ **6** Proceed with the steps in “Configuration Procedure” on page 51.

---

## Configuration Procedure

To configure an A12-TP25 module in an 8265 switch follow these steps:

- \_\_\_ **1** Connect the module to the ATM network with the command:  
**SET MODULE slot CONNECTED**  
as described in “Connecting Modules to the Network” on page 11.
- \_\_\_ **2** Set the characteristics of each port using the **SET PORT** command, as described in “Defining Port Settings” on page 12.  
  
12 Mbps ports may be configured as UNI, IISP, PNNI, AUTO, VOID, or PUBLIC\_UNI ports. In addition to the standard ATM port parameters, the CLOCK, FRAME\_FORMAT, and FLOW\_CONTROL parameters may also be defined on 12 Mbps ports.  
  
**Note:** To view the current port settings, use the **SHOW PORT VERBOSE** command (see “Displaying Configuration Settings” on page 13).
- \_\_\_ **3 (optional)** Set up VPC links using the **SET VPC\_LINK** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **4 (optional)** Set up PVCs using the **SET PVC** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **5** Enable the ports that you have configured, using either the **SET PORT** or the **SET MODULE** command, as described in “Enabling Ports” on page 12.
- \_\_\_ **6** Check that all LEDs are functioning correctly:
  - The port status LEDs should be GREEN, if ATM traffic is present, or YELLOW, if no ATM traffic is present.
  - The 155 Mbps port status LED should be ON.
  - The 155 Mbps port activity LED should be ON when there is ATM traffic.
  - All other LEDs on the module faceplate should be OFF.

If any LEDs are not functioning as indicated, refer to Chapter 13, “Troubleshooting for 25 Mbps Modules” on page 55 to diagnose and correct the problem before proceeding to the next step.
- \_\_\_ **7** Save the port and module configuration settings with the command:  
**SAVE MODULE\_PORT**  
as described in “Saving Configuration Settings” on page 13.  
  
For full information on all ATM commands, see the *8265 Command Reference Guide*.





---

## Chapter 12. Installing a 155 Mbps I/O Card on a 25 Mbps Module

---

### Installation Procedure

**CAUTION:**

When installing an I/O card on the motherboard, be careful not to touch its components. Always hold the card by the faceplate or by its edges as shown in Figure 9 on page 54.

To install an 155 Mbps I/O card on the A12-TP25 motherboard, follow these steps:

- **1** Remove the cover plate from the port opening on the module faceplate by removing the two screws ( **A** in Figure 9 on page 54). Keep the screws in a safe place.
- **2** Remove the cover plate from the inside of the faceplate.
- **3** Loosen the two screws ( **B** ) on the I/O card that attach the faceplate bracket to the circuit board. Do not remove the screws completely.
- **4** Insert the I/O card behind the module faceplate, aligning the port connectors between the two springs ( **C** ).
- **5** Push the I/O card toward the front until it touches the faceplate.
- **6** Hold the I/O card so that its connectors are aligned over the connectors on the motherboard. Then gently push the card downwards until you hear it click into the motherboard connectors.
- **7** Insert the two screws ( **A** ) that attach the I/O card faceplate bracket to the faceplate, and tighten them with a screwdriver.
- **8** Using a screwdriver, tighten the two screws ( **B** ) that attach the faceplate bracket to the I/O card circuit board.

**Note:** If you replace an I/O card after configuring the module (see “Configuration Procedure” on page 51) and then re-insert the module in the switch, the new I/O card is automatically configured with the settings of the previous card.

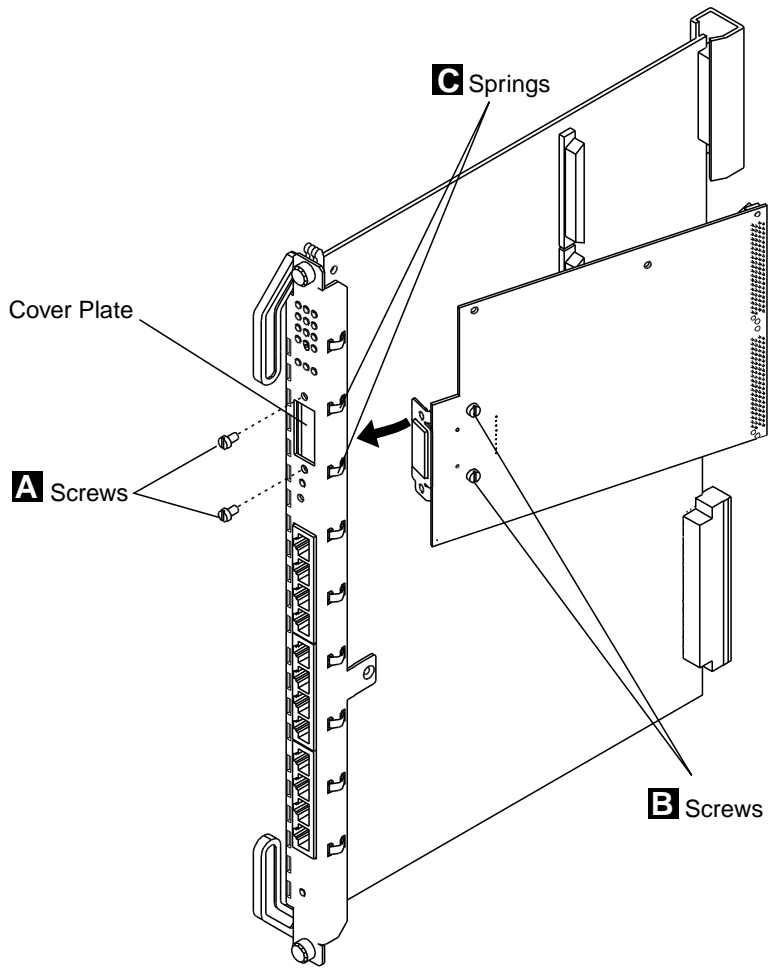


Figure 9. Installing a 155 Mbps I/O Card on the 25 Mbps Module Motherboard

## Chapter 13. Troubleshooting for 25 Mbps Modules

All troubleshooting for the 25 Mbps module is done using:

- The port and module LEDs on the module faceplate (see Figure 8 on page 49)
- The results displayed by the SHOW MODULE VERBOSE, SHOW PORT VERBOSE, and SHOW VPC\_LINK commands.

### First Test the LEDs

Before you start troubleshooting, check that all LEDs are working by pressing the LED Test button on the active Controller Module in the 8265 switch. All LEDs on the 25 Mbps module should light ON. If not, replace the module (see “Replacing an ATM Media Module” on page 131).

To diagnose problems with a 25 Mbps module:

- 1 Check whether the module LEDs indicate normal operation or not:

Table 7. A12-TP25 Module LED States

LED Name	Color	State	Meaning
RESET	Yellow	OFF	Normal (module not being reset).
		ON	Normal (module being reset), else see “Module LED Error Diagnosis” on page 110.
		Blinking	See “Module LED Error Diagnosis” on page 110.
WRONG SLOT	Yellow	OFF	Normal.
		ON	The module is installed in an incorrect slot (1, 3, 5, 7) and no power is reaching the module.

- 2 Enter the SHOW MODULE VERBOSE command from the configuration console and check that the status messages are:

- Connected
- Hardware Okay
- Enable or Disable
- Normal

If any other status is displayed, see “SHOW MODULE Error Diagnosis” on page 113.

### 3 Check whether the 25 Mbps port LEDs indicate normal operation or not:

Color	Function	State	Meaning
Green	Port Status	ON	Normal (port ENABLED).
		OFF	Normal (port DISABLED), else see "Port LED Error Diagnosis" on page 115.
		Blinking	See "Port LED Error Diagnosis" on page 115.
Yellow	Port Activity	ON or Blinking	Normal (ATM cells being transmitted over the port).

### 4 (155 Mbps I/O Card only) Check whether the 155 Mbps port LEDs indicate normal operation or not:

LED Name	Color	State	Meaning
STAT	Green	ON	Normal (port ENABLED).
		OFF	Normal (port DISABLED), else see "Port LED Error Diagnosis" on page 115.
		Blinking	See "Port LED Error Diagnosis" on page 115.
ACTIVITY	Yellow	ON	Normal (ATM cells being transmitted over the port).
		OFF	See "Port LED Error Diagnosis" on page 115.
ERROR	Yellow	OFF	Normal.
		ON	See "Port LED Error Diagnosis" on page 115.

### 5 Enter the SHOW PORT VERBOSE or SHOW VPC\_LINK command from the configuration console and check that the status message for the port or VPC is one of the following:

- DOWN: Establishing \*
- DOWN: Configuring \*
- DOWN: Retrieving \*
- UP: Registering \*
- UP

If any other status is displayed, or if any of the transient statuses (marked \*) are displayed continuously, see "SHOW PORT / SHOW VPC\_LINK Error Diagnosis" on page 118.

**USA and Canada:** If the problem is not resolved after following the troubleshooting procedures outlined in this chapter, call toll-free 800-IBM-SERV for IBM support.

---

## Replacing a 155 Mbps I/O Card

As a result of diagnosing a problem on a 25 Mbps module, you may be directed to replace an I/O card. To replace an I/O card follow these steps:

- **1** Enter SET MODULE slot ISOLATED where slot is the slot number of the A12-TP25 module containing the I/O card. Then press Enter.
- **2** Remove the module from the chassis.
- **3** Unscrew the I/O card from the motherboard.
- **4** Install a new I/O card on the motherboard as described in Chapter 12, “Installing a 155 Mbps I/O Card on a 25 Mbps Module” on page 53.
- **5** Re-insert the module into the chassis.
- **6** Enter SET MODULE slot CONNECTED where slot is the slot number of the module. Then press Enter.



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## 8271 and 8272 LAN Switch Modules

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## Chapter 14. 8271 LAN Switch Module Guidelines

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### Installation

The 8271 LAN Switch Modules are 2-slot (A-TR8LS2 - FC 6212) and 3-slot (A-TR8LS4 - FC 6312) media modules that can be installed on the 8265 switch, providing the following requirements are met:

1. The A-TR8LS2 module may **only be installed in slots 1, 3, 5, and 7.**
2. The A-TR8LS4 module may **only be installed in slots 1, 3, and 5.**

#### Using 8260 Modules in the 8265

See Appendix C, "Backward Compatibility with 8260 Modules" on page 135 before attempting to use an existing 8260 8271 LAN Switch Module in the 8265 switch.

---

### Documentation

For installation, configuration and troubleshooting instructions, refer to the 8271 LAN Switch Module documentation:

- [8271 LAN Switch Module: Planning and Installation Guide GA27-4162](#)
- [4-Port 10BASE-T and 3-Port 10BASE-FL Universal Feature Cards: Planning and Installation Guide, GA27-4120](#)
- [100BASE-TX and 100BASE-FX Universal Feature Card: Planning and Installation Guide, GA27-4096](#)
- [ATM 155-Mbps Multimode Fiber Universal Feature Card: Planning and Installation Guide, GA27-4156](#)



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## Chapter 15. 8272 LAN Switch Module Guidelines

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### Installation

The 8272 LAN Switch Modules are 2-slot (A-E12LS2 - FC 6208) and 3-slot (A-E12LS4 - FC 6308) media modules that can be installed on the 8265 switch, providing the following requirements are met:

1. The A-E12LS2 module may only be installed in slots 1, 3, 5, and 7.
2. The A-E12LS4 module may only be installed in slots 1, 3, and 5.

#### Using 8260 Modules in the 8265

See Appendix C, "Backward Compatibility with 8260 Modules" on page 135 before attempting to use an existing 8260 8272 LAN Switch Module in the 8265 switch.

---

### Documentation

For installation, configuration and troubleshooting instructions, refer to the 8272 LAN Switch Module documentation:

- [8272 LAN Switch Module: Planning and Installation Guide GA27-4163](#)
- [2-Port Fiber and 4-Port UTP/STP Enhanced Token-Ring Universal Feature Cards: Planning and Installation Guide, GA27-4168](#)
- [ATM 155-Mbps Multimode Fiber Universal Feature Card: Planning and Installation Guide, GA27-4156](#)



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## WAN 2 Module

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## Chapter 16. Installing the WAN2 Module

This chapter contains step-by-step procedures for installing and configuring a WAN2 module in an 8265 switch.

### Using 8260 Modules in the 8265

See Appendix C, "Backward Compatibility with 8260 Modules" on page 135 before attempting to use an existing 8260 WAN2 module in the 8265 switch.

## Module Front Panel

Refer to Figure 10 when installing and configuring the WAN2 module.

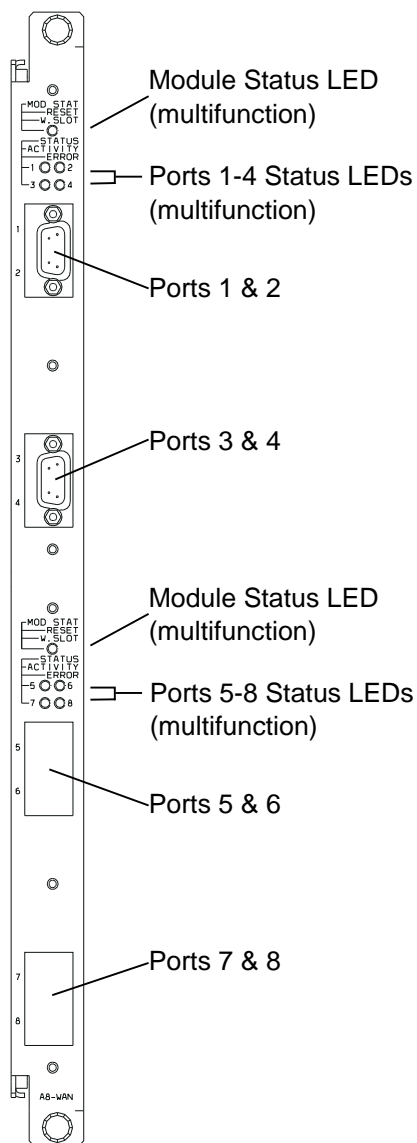


Figure 10. WAN2 Module Front Panel

## Installation Procedure

To install an A8-WAN module in an 8265 switch follow these steps:

- 1 Unpack the module and any I/O cards you have received, as described in “Unpacking an ATM Media Module” on page 3. For each module you ordered, the shipping group contains:

- One module motherboard
- Up to 2 I/O cards to be installed on the motherboard. With each I/O card, you should also receive:

E1/T1 I/O Cards	E3/DS3/OC3/STM1 I/O Cards
<ul style="list-style-type: none"> <li>• One I/O card, to be installed on the A8-WAN motherboard</li> <li>• One Vital Product Data (VPD) Programmable Read Only Memory (PROM) chip, to be installed on the motherboard</li> <li>• Six screws to secure the I/O card to the motherboard</li> <li>• Two screwlock kits, one for each port connection</li> <li>• One faceplate</li> <li>• Two 'Y' cables for connecting the ports to their cables</li> </ul>	<ul style="list-style-type: none"> <li>• One I/O card, to be installed on the A8-WAN motherboard</li> <li>• One Vital Product Data (VPD) Programmable Read Only Memory (PROM) chip, to be installed on the motherboard.</li> <li>• Four screws for attaching the I/O card to the motherboard.</li> <li>• One motherboard faceplate bracket</li> <li>• One dummy port cover with screw, for use when only one I/O card is installed on the motherboard.</li> </ul>

- 2 Install your I/O cards on the module motherboard, as described in Chapter 18, “Installing E3, DS3, OC3, and STM1 I/O Cards on the ATM WAN2 Module” on page 79.

- 3 Insert the module in the 8265 switch as described in “Inserting a Module in the 8265 ATM Switch” on page 5. **The WAN2 module can only be inserted in slots 1, 3, 5, or 7.**

Check that the Reset LED flashes ON briefly and then turns OFF. If not, refer to “Module LED Error Diagnosis” on page 110 to diagnose and correct the problem before proceeding to the next step.

- 4 Attach the cables that connect the module to another ATM device, as described in “Cabling and Connecting to Devices” on page 8.

- 5 Record the module's installation and cabling information in the ATM Cabling Charts provided in the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide*.

- 6 Proceed with the steps in “Configuration Procedure” on page 69.



---

## Configuration Procedure

To configure an A8-WAN module in an 8265 switch follow these steps:

- \_\_\_ **1** Connect the module to the ATM network with the command:  
**SET MODULE slot CONNECTED**  
as described in “Connecting Modules to the Network” on page 11.  
Check that the module status LED lights ON. If not, refer to “Module LED Error Diagnosis” on page 110 to diagnose and correct the problem before proceeding to the next step.
- \_\_\_ **2** Set the characteristics of each port using the **SET PORT** command, as described in “Defining Port Settings” on page 12.  
WAN2 ports may be configured as UNI, IISP, PNNI, AUTO, VOID, or PUBLIC\_UNI ports. In addition to the standard ATM port parameters, the port-specific parameters for the WAN2 module are described in Chapter 20, “Changing Default WAN2 Port Settings” on page 99.  
**Note:** To view the current port settings, use the **SHOW PORT VERBOSE** command (see “Displaying Configuration Settings” on page 13).
- \_\_\_ **3 (optional)** Set up VPC links using the **SET VPC\_LINK** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **4 (optional)** Set up PVCs using the **SET PVC** command, as described in the *IBM 8265 Nways ATM Switch: User's Guide*.
- \_\_\_ **5** Enable the ports that you have configured, using either the **SET PORT** or the **SET MODULE** command, as described in “Enabling Ports” on page 12.
- \_\_\_ **6** Check that all LEDs are functioning correctly:
  - The module status LED should be GREEN.
  - The port status LEDs should be YELLOW if ATM traffic is present, or GREEN if no ATM traffic is present.
  - All other LEDs on the module faceplate should be OFF.If any LEDs are not functioning as indicated, refer to Chapter 19, “Troubleshooting for WAN2 Modules” on page 85 to diagnose and correct the problem before proceeding to the next step.
- \_\_\_ **7** Save the port and module configuration settings with the command:  
**SAVE MODULE\_PORT**  
as described in “Saving Configuration Settings” on page 13.  
For full information on all ATM commands, see the *8265 Command Reference Guide*.



---

## Chapter 17. Installing E1/T1 I/O Cards on the ATM WAN2 Module

---

### Installation Procedure

To install an I/O card on the A8-WAN motherboard, follow these steps:

- **1** Adjust the port jumpers on the I/O card correspond to the type of connection you will be using (E1 Coaxial, E1 Twisted-Pair, T1 Twisted-Pair) by following the instructions in “Configuring the Connection Type” on page 73.
- **2** Ensure that the configuration of the grounding jumpers on the E1/T1 I/O card conforms to the type of port connection and to the specific grounding regulations in your country as described in “Grounding Considerations” on page 74.
- **3** Mount the I/O card on the WAN2 module by following the instructions in “Installing the E1/T1 I/O Card” on page 75.

**Note:** If you replace an I/O card after configuring the module (see “Configuration Procedure” on page 69) and then re-insert the module in the switch, the new I/O card is automatically configured with the settings of the previous card.

## Jumpers and Ports on the E1/T1 I/O Card

Table 11 on page 74 shows the location of the ports, configuration jumpers and grounding jumpers on the E1/T1 I/O card.

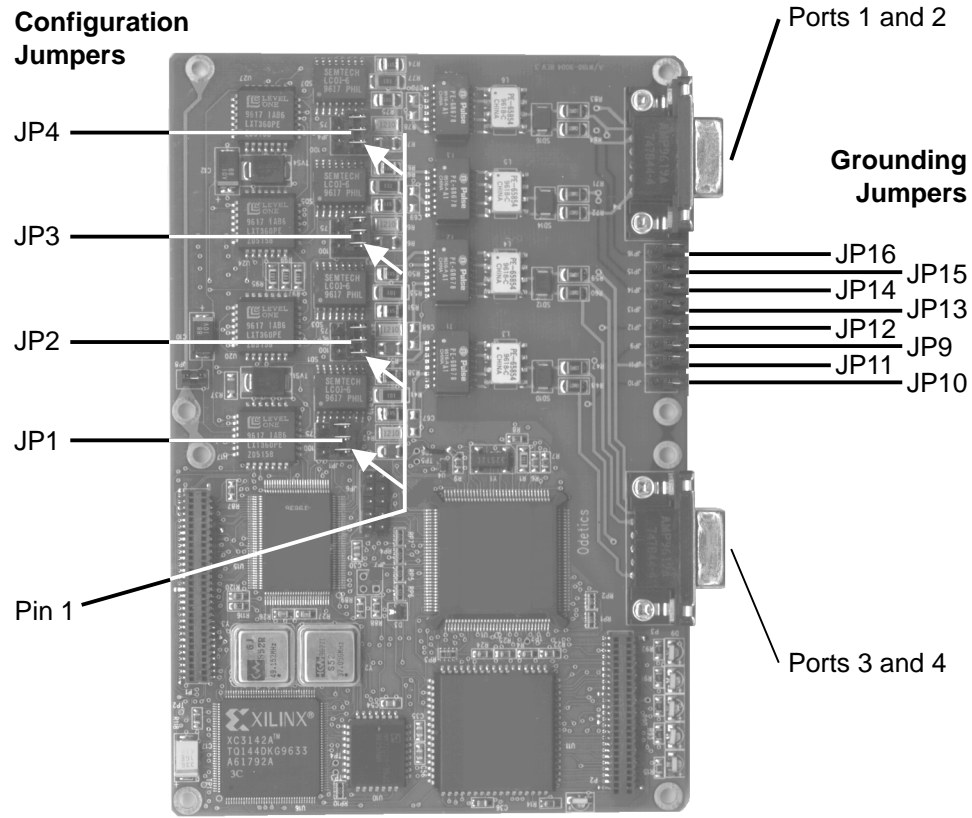


Figure 11. Port and Jumper Locations on the E1/T1 I/O Card

## Configuring the Connection Type

Each E1/T1 I/O card has four Port Connection jumpers (JP1-JP4 in Table 11 on page 74), which determine the types of connection you can set up on the ports:

- E1 Coaxial Connection
- E1 Twisted-Pair Connection
- T1 Twisted-Pair Connection

**Note:** All ports on the WAN2 module must be set up either:

- All as T1 connections (twisted-pair), or
- All as E1 connections (coaxial or twisted-pair)

If E1 and T1 connections are mixed on the same module, a module error will be generated.

Figure 12 shows the correct position of the jumper for each connection type.

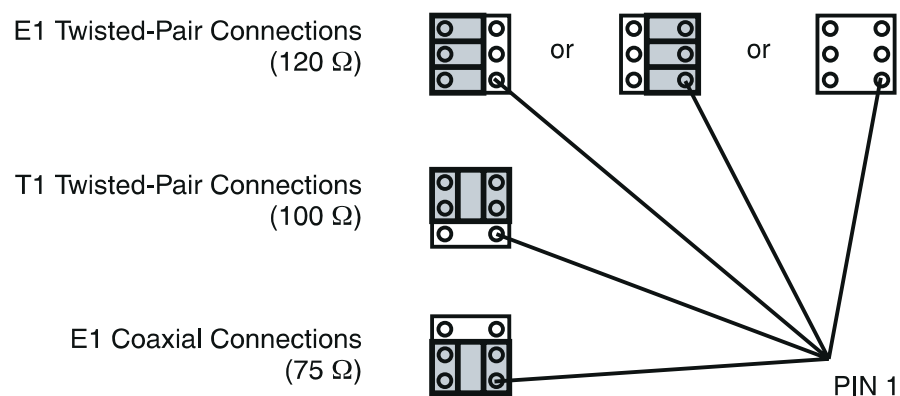


Figure 12. Port Connection Jumper Settings

Port Number:	Jumper Number:	Port Number:	Jumper Number:
Port 1	JP4	Port 3	JP2
Port 2	JP3	Port 4	JP1

---

## Grounding Considerations

### E1 and T1 Twisted-Pair Connections

Twisted-pair connections should not be grounded. You must remove the grounding jumpers from both the Transmit and the Receive jumper pins for each port that has a twisted-pair connection.

### E1 Coaxial Connections

The shielding on the Connector Cables provided with the E1 Coaxial I/O Card (see the "Installation Procedure" on page 68) are connected directly to ground at the connector level, making the use of the grounding jumpers (JP9-JP14) unnecessary.

Users with specific grounding requirements may procure their own cable and set the ground on a per-port basis. Eight jumpers (one for Transmit and one for Receive on each port) are provided on the rear of the E1/T1 I/O card (see Table 11) to control the grounding of port cables.

If a jumper is inserted over a pair of jumper pins, the outer connector of the corresponding port is grounded to the Frame Ground.

<i>Table 11. Ground Jumper Settings for E1 Coaxial Connections</i>			
To Ground Outer of:	Place Jumper On:	To Ground Outer of:	Place Jumper On:
Port 1 Receive	JP9	Port 3 Receive	JP13
Port 1 Transmit	JP10	Port 3 Transmit	JP14
Port 2 Receive	JP11	Port 4 Receive	JP15
Port 2 Transmit	JP12	Port 4 Transmit	JP16

**Note:** Standard G.703 recommends that the outer conductor of the coaxial pair be connected to ground on the transmit port, and that the same provision be available for the receive port. Some countries however, have different rules, so the setting may be not apply.

## Installing the E1/T1 I/O Card

### CAUTION:

When installing an I/O card on the motherboard, be careful not to touch its components. Always hold the card by its edges.

To install the E1/T1 I/O card on the WAN2 module motherboard, follow these steps:

- 1 Before installing the I/O card on the WAN2 module, you must isolate and then remove the WAN2 module from the 8265 switch. To isolate the module, enter the following command from the ATM console:  

```
SET MODULE slot ISOLATED
```

 where `slot` specifies the number of the slot to be used.
- 2 Detach the motherboard on which you want to install the I/O card by removing the four screws (1 and 2 in Figure 13) that hold the motherboard to the module. Retain the screws for reattaching the motherboard.

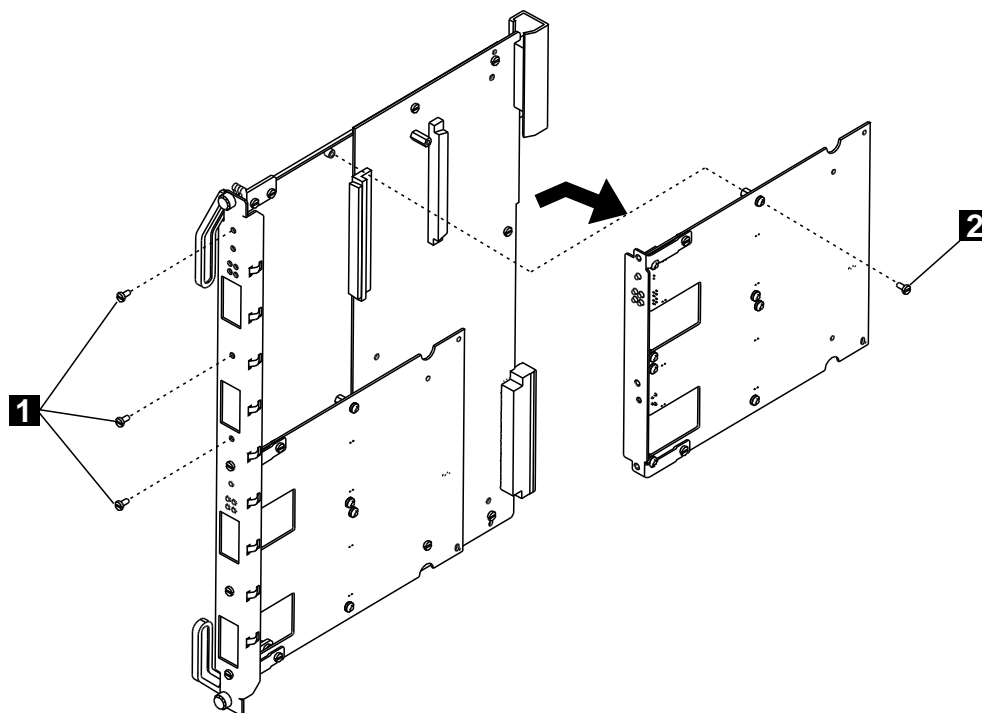


Figure 13. Removing the Motherboard

- 3 Disconnect the motherboard connectors and lift the motherboard out of the module.

- **4** Remove the dummy faceplate bracket from the motherboard ( **3** in Figure 14), retaining the screws for the new bracket. Save the dummy bracket in a safe place for future reuse.

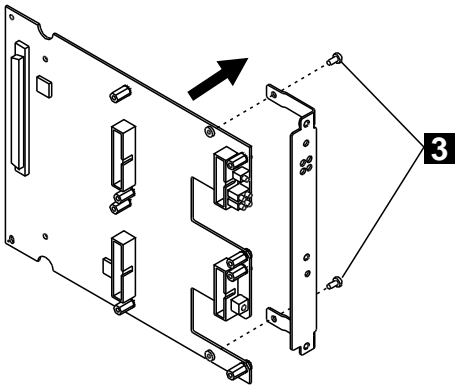


Figure 14. Removing the Dummy Faceplate Bracket

- **5** Attach the I/O card to the motherboard using the six screws provided ( **4** in Figure 15).

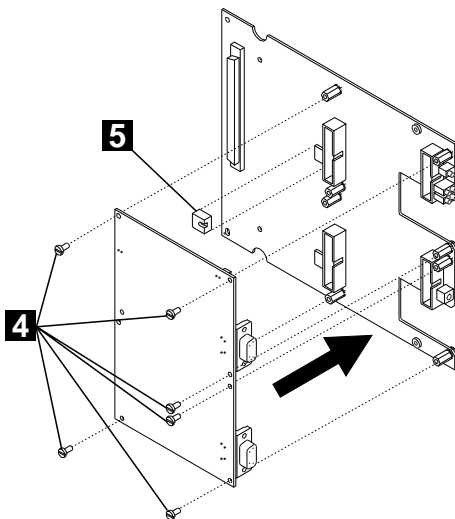


Figure 15. Attaching the I/O Card

- **6** Install the VPD PROM chip ( **5** ) on the motherboard, making sure that the notch is aligned with the front of the module.
- **7** Attach the faceplate bracket to the motherboard using the two screws ( **6** in Figure 16 on page 77) from the old dummy bracket.



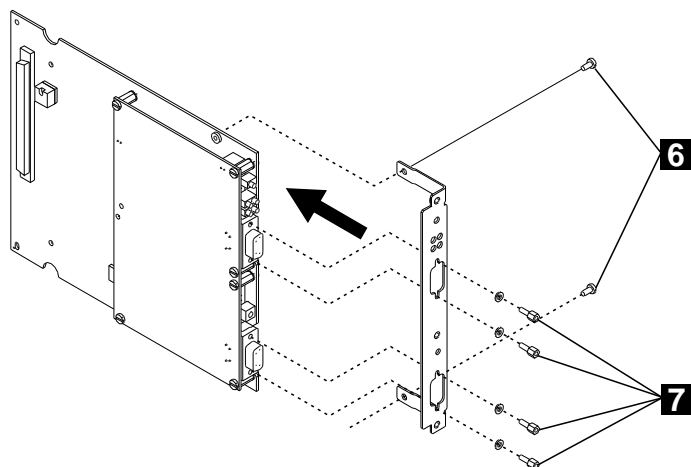


Figure 16. Attaching the Faceplate Bracket

- **8** Using a screwdriver, attach one post (**7**) onto each side of each of the two ports on the I/O card.
- **9** Hold the motherboard so that the connectors and screw holes are aligned correctly on the module. Then gently push the card downwards until you hear it click into the motherboard connectors.

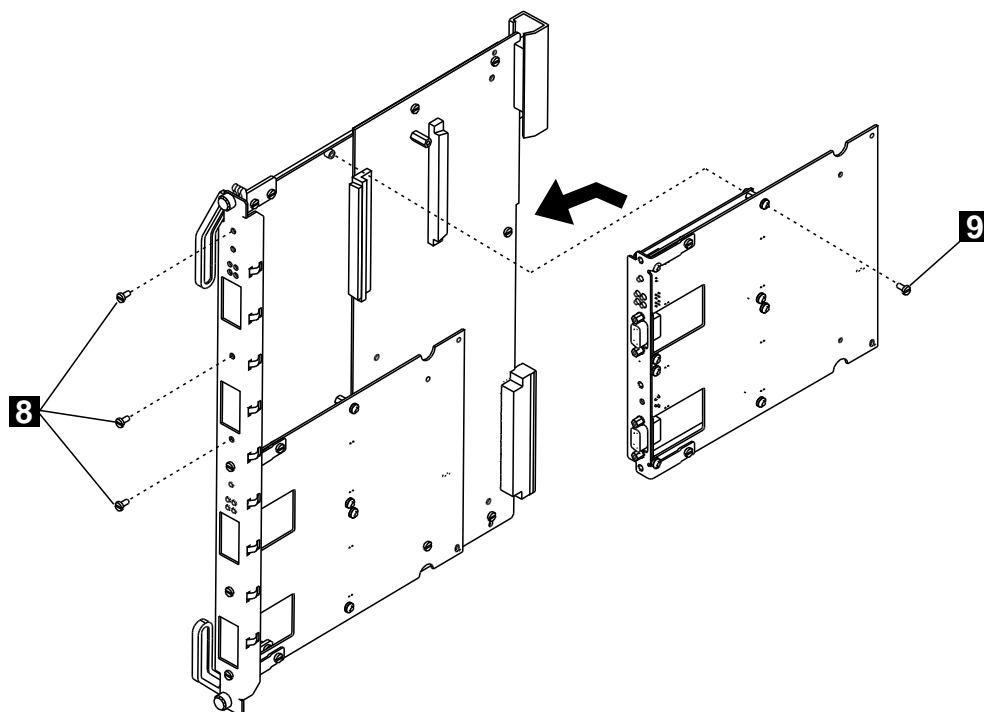


Figure 17. Reattaching the Motherboard

- **10** Reattach the motherboard to the module using the four screws (**8** and **9** in Figure 17) that originally held the motherboard.



---

## Chapter 18. Installing E3, DS3, OC3, and STM1 I/O Cards on the ATM WAN2 Module

---

### Installation Procedure

To install an I/O card on the A8-WAN motherboard, follow these steps:

- **1 (E3/D3 I/O cards only)** Ensure that the configuration of the grounding jumpers on the I/O card conforms to the type of port connection and to the specific grounding regulations in your country by following the instructions in Table 12 on page 81.
- **2** Mount the I/O card on the WAN2 module module by following the instructions in “Installing the I/O Card” on page 82.

**Note:** If you replace an I/O card after configuring the module (see “Configuration Procedure” on page 69) and then re-insert the module in the switch, the new I/O card is automatically configured with the settings of the previous card.

## Jumpers and Ports on the I/O Card

Table 12 on page 81 shows the location of the ports, configuration jumpers and grounding jumpers on the I/O card.

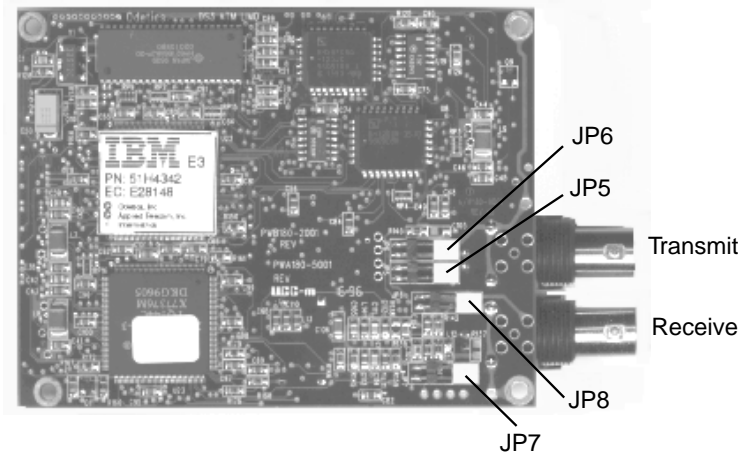


Figure 18. Port and Jumper Locations on the E3/DS3 I/O Card

## Setting the Grounding on E3/DS3 I/O Cards

To adhere to country specific regulations regarding the grounding of outer conductors on coaxial pairs (both receive and transmit ports), four jumpers are provided on the rear of the I/O cards. If the jumpers are not used, the outer connector is grounded through a 10 nF capacitor. Table 12 shows the location of the four jumpers.

- If a jumper is inserted over a pair of jumper pins, the outer connector of the corresponding port is grounded to the Frame Ground.
- If no jumper is inserted, the outer connector of that port is grounded through a 10 nF capacitor.

Normally, only the outer connector of the transmit port is to be grounded, and not the receive port. This is dependent on individual country rulings.

Refer to Table 12 to determine which jumpers you require to meet your country's requirements. Remove any jumpers that are not required, by sliding them gently in the direction of the ports.

**Attention: Some of the jumpers MUST be removed from E3 I/O cards.**

Outer of:	Connected to:	JP5	JP6	JP7	JP8
Transmit	Ground		√		
Transmit	0 volt	√			
Receive	Ground				√
Receive	0 volt			√	
E3 (according to G.703)		√	√		
DS3 (recommended setting)		√	√	√	√

**Note:** Standard G.703 recommends that the outer conductor of the coaxial pair be connected to ground on the transmit port, and that the same provision be available for the receive port. Some countries however, have different rules, so the setting may be not apply.

## Installing the I/O Card

Before installing the I/O card on the WAN2 module, you must isolate and then remove the WAN2 module from the 8265 switch. To isolate the module, enter the following command from the ATM console:

```
SET MODULE slot ISOLATED
```

where `slot` specifies the number of the slot to be used.

### CAUTION:

**When installing an I/O card on the motherboard, be careful not to touch its components. Always hold the card by its edges.**

**Note:** Although the illustrations in this chapter show an E3/DS3 I/O card being installed on the WAN2 module, the steps are identical for the OC3/STM1 I/O card.

To install the I/O card on the WAN2 module motherboard, follow these steps:

- 1 Detach the motherboard on which you want to install the I/O card by removing the four screws (1 and 2 in Figure 19) that hold the motherboard to the module. Retain the screws for reattaching the motherboard.

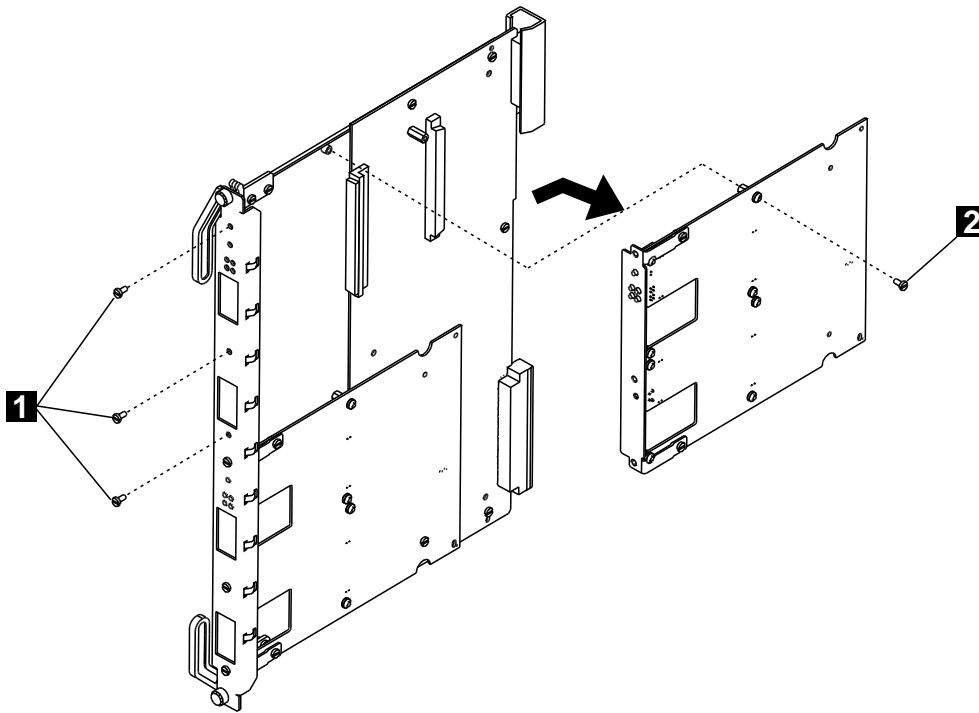


Figure 19. Removing the Motherboard

- 2 Disconnect the motherboard connectors and lift the motherboard out of the module.

- **3** Remove the dummy faceplate bracket from the motherboard ( **3** in Figure 20), retaining the screws for the new bracket. Save the dummy bracket in a safe place for future reuse.

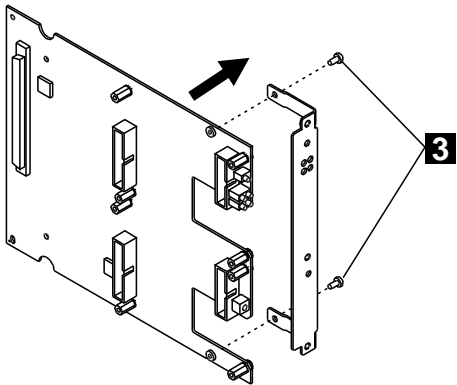


Figure 20. Removing the Dummy Faceplate Bracket

- **4** Attach the I/O card to the motherboard using the four screws provided ( **4** in Figure 21).  
**Note:** If you are installing only one I/O card on the motherboard, you must install it in the **top position**.

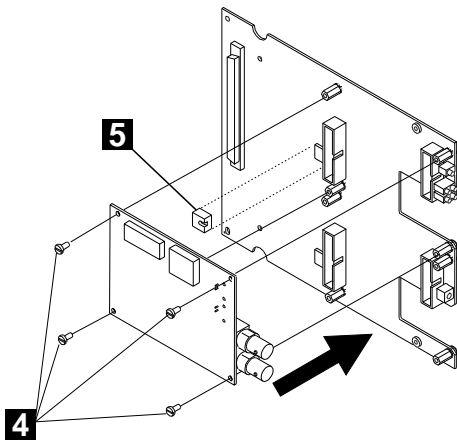


Figure 21. Attaching the I/O Card

- **5** Install the VPD PROM chip ( **5** ) on the motherboard, making sure that the notch is aligned with the front of the module.

- **6** Attach the faceplate bracket to the motherboard using the two screws ( **6** in Figure 22) from the old dummy bracket.

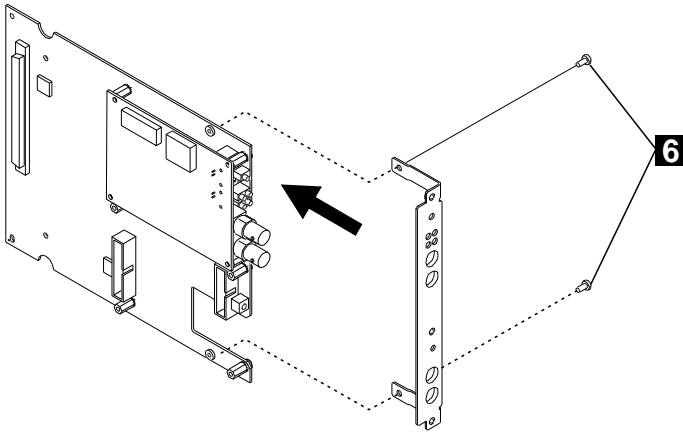


Figure 22. Attaching the Faceplate Bracket

- **7** Hold the motherboard so that the connectors and screw holes are aligned correctly on the module. Then gently push the card downwards until you hear it click into the motherboard connectors.
- **8** Reattach the motherboard to the module using the four screws ( **7** and **8** in Figure 23) that originally held the motherboard.

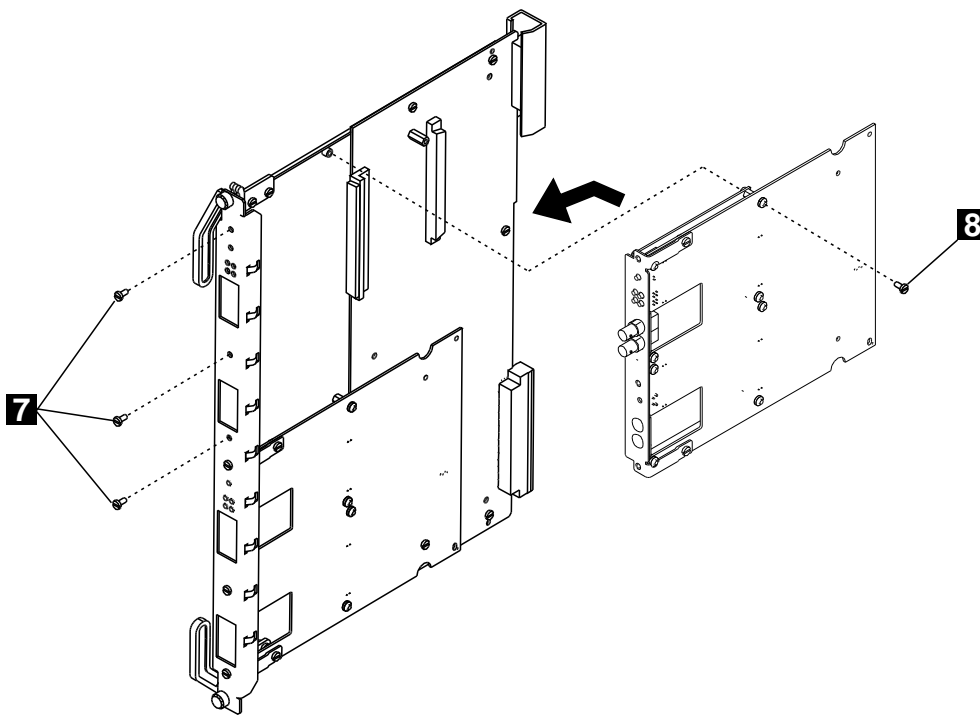


Figure 23. Reattaching the Motherboard



## Chapter 19. Troubleshooting for WAN2 Modules

Basic troubleshooting for the WAN2 module is done using:

- The port and module LEDs on the module faceplate (see Figure 10 on page 67)
- The results displayed by the SHOW MODULE VERBOSE, SHOW PORT VERBOSE, and SHOW VPC\_LINK commands.

In addition, the WAN2 module supports:

- WAN-specific diagnostic procedures, as described in “Using Diagnostic Functions” on page 90, and
- Monitoring of performance statistics, as described in “Monitoring Performance Statistics” on page 97.

### Basic Troubleshooting for WAN2 Ports and Modules

#### First Test the LEDs

Before you start troubleshooting, check that all LEDs are working by pressing the LED Test button on the active Controller Module in the 8265 switch. All LEDs on the WAN2 module should light ON. If not, replace the module (see “Replacing an ATM Media Module” on page 131).

To diagnose problems with a WAN2 module:

- 1 Check whether the module LEDs indicate normal operation or not:

Table 13. A8-WAN Multifunction Module LED States

Color	State	Function	Meaning
Green	ON	MOD STAT	Normal (module CONNECTED).
Yellow	ON	RESET	Normal (module being reset), else see “Module LED Error Diagnosis” on page 110.
Yellow	Blinking	RESET	See “Module LED Error Diagnosis” on page 110.
Red	ON	W. SLOT	See “Module LED Error Diagnosis” on page 110.
---	OFF	MOD STAT	Normal (module ISOLATED), else see “Module LED Error Diagnosis” on page 110.

- 2 Enter the SHOW MODULE VERBOSE command from the configuration console and check that the status messages are:

- Connected
- Hardware Okay
- Enable or Disable
- Normal

If any other status is displayed, see “SHOW MODULE Error Diagnosis” on page 113.

### 3 Check whether the port LEDs indicate normal operation or not:

Color	State	Function	Meaning
Green	ON	STATUS	Normal (port ENABLED).
Green	Blinking	STATUS	See "Module LED Error Diagnosis" on page 110.
Yellow	ON	ACTIVITY	Normal (ATM cells are being transmitted),
Red	ON	ERROR	See "Module LED Error Diagnosis" on page 110.
---	OFF	STATUS	Normal (port DISABLED), else see "Module LED Error Diagnosis" on page 110.

### 4 Enter the SHOW PORT VERBOSE or SHOW VPC\_LINK command from the configuration console and check that the status message for the port or VPC is one of the following:

- DOWN: Establishing \*
- DOWN: Configuring \*
- DOWN: Retrieving \*
- UP: Registering \*
- UP

If any other status is displayed, or if any of the transient statuses (marked \*) are displayed continuously, see "SHOW PORT / SHOW VPC\_LINK Error Diagnosis" on page 118.

### 5 Check the port-specific values displayed with SHOW PORT VERBOSE:

- The DIAGNOSTICS fields are described in "On Demand Diagnostics" on page 93.
- If the EQUIPMENT TEST RESULT is not OK, additional fields are displayed (refer to "Power On Diagnostics" on page 91).
- The FAILURE STATUS fields are described in "Failure Status" on page 95.

**USA and Canada:** If the problem is not resolved after following the troubleshooting procedures outlined in this chapter, call toll-free 800-IBM-SERV for IBM support.

## Replacing WAN2 I/O Cards

As a result of diagnosing a problem on a WAN2 module, you may be directed to replace an I/O card. To replace an I/O card follow the steps that correspond to the type of the I/O card. The procedure for:

- E1/T1 I/O card are described in “Replacing E1/T1 I/O Cards”
- E3/DS3/OC3/STM1 I/O card are described in “Replacing E3/DS3 and OC3/STM1 I/O Cards” on page 88

## Replacing E1/T1 I/O Cards

After running a wrap test, you may find that an E1/T1 I/O card is faulty and you need to replace it. Or, while troubleshooting a problem with the module, you may be instructed to replace an I/O card.

### CAUTION:

**When removing an I/O card from the motherboard, be careful not to touch its components. Always hold the card by its edges.**

To replace an E1/T1 I/O card follow these steps:

- \_\_\_ **1** Enter SET MODULE slot ISOLATED where slot is the slot number of the module containing the I/O card. Then press Enter.
- \_\_\_ **2** Remove the module from the switch.
- \_\_\_ **3** Unscrew and remove the four screws that attach the motherboard to the module ( **8** and **9** in Figure 17 on page 77). Gently pull the motherboard away from the module until the motherboard connectors are detached.
- \_\_\_ **4** Unscrew and remove the post from each side of each port ( **7** in Figure 16 on page 77).
- \_\_\_ **5** Unscrew and remove the two screws that attach the faceplate bracket to the motherboard ( **6** in Figure 16 on page 77) and remove the bracket.
- \_\_\_ **6** Unscrew and remove the four screws that attach the I/O card to the motherboard ( **4** in Figure 15 on page 76) and remove the I/O card.
- \_\_\_ **7** Remove the VPD PROM chip for the I/O card being replaced. ( **5** in Figure 15 on page 76).
- \_\_\_ **8** Install a new I/O card and VPD PROM chip on the motherboard as described in “Installing the E1/T1 I/O Card” on page 75.
- \_\_\_ **9** Re-insert the module into the switch.
- \_\_\_ **10** Enter SET MODULE slot CONNECTED where slot is the slot number of the module. Then press Enter.

## Replacing E3/DS3 and OC3/STM1 I/O Cards

After running a wrap test, you may find that the I/O card is faulty and you need to replace it. Or, while troubleshooting a problem with the module, you may be instructed to replace an I/O card.

### CAUTION:

**When removing an I/O card from the motherboard, be careful not to touch its components. Always hold the card by its edges.**

To replace an I/O card follow these steps:

- \_\_\_ **1** Enter SET MODULE slot ISOLATED where slot is the slot number of the module containing the I/O card. Then press Enter.
- \_\_\_ **2** Remove the module from the switch.
- \_\_\_ **3** Unscrew and remove the four screws that attach the motherboard to the module ( **7** and **8** in Figure 23 on page 84). Gently pull the motherboard away from the module until the motherboard connectors are detached.
- \_\_\_ **4** Unscrew and remove the two screws that attach the faceplate bracket to the motherboard ( **6** in Figure 22 on page 84) and remove the bracket.
- \_\_\_ **5** Unscrew and remove the four screws that attach the I/O card to the motherboard ( **4** in Figure 21 on page 83) and remove the I/O card.
- \_\_\_ **6** Remove the VPD PROM chip for the I/O card being replaced. ( **5** in Figure 21 on page 83).
- \_\_\_ **7** Install the new I/O card and VPD PROM chip on the motherboard as described in “Installing the I/O Card” on page 82.
- \_\_\_ **8** Re-insert the module into the switch.
- \_\_\_ **9** Enter SET MODULE slot CONNECTED where slot is the slot number of the module. Then press Enter.

---

## Replacing Modules

While troubleshooting a problem, you may be instructed to replace a failing WAN2 module.

To replace a faulty module, follow these steps:

- \_\_\_ **1** Enter `SET MODULE slot ISOLATED` where `slot` is the slot number of the failed module. Then press Enter.
- \_\_\_ **2** Remove the failed module and insert another WAN2 module in its slot.
- \_\_\_ **3** Enter `SET MODULE slot CONNECTED` where `slot` is the slot number of the failed module. Then press Enter.

The new WAN2 module is automatically configured with the last settings configured for the slot number you entered.

---

## Using Diagnostic Functions

There are three types of diagnostics:

**Power On Diagnostics:** Run automatically after the module is reset. See “Power On Diagnostics” on page 91 for details.

**Audit Diagnostics** Run continuously when the module is operational See “Audit Diagnostics” on page 92 for details.

**On Demand Diagnostics** Run on request, by entering the command ;SET PORT slot.port PARM ADDRESS 70 value ;See “On Demand Diagnostics” on page 93 for details.

## Power On Diagnostics

The diagnostics are run each time the module is initialized, unless deactivated by the SET PORT command (SET PORT slot.port parm address 100 1).

To enable power on diagnostics, if they are disabled, enter the SET PORT slot.port parm address 100 0 command.

The diagnostics test memory access, register access, data path continuity, and basic device functionality on the ports.

The results of the power on diagnostics are displayed in the EQUIPMENT\_TEST\_RESULT field displayed after entering the SHOW PORT VERBOSE command from the ATM console.

**Example:** The following examples shows the Equipment Test Results fields displayed from the SHOW PORT slot.port VERBOSE command.

```
8265ATM> show port 2.2 verbose      [ENTER]
:
EQUIPMENT TEST RESULT:
-----
Tests Results                      : OK
8265ATM>
```

The following table describes the fields displayed:

<i>Table 15. Power On Diagnostics</i>	
<b>Field</b>	<b>Description</b>
Test results	This field shows whether the diagnostics have completed successfully, failed, or are currently active.
Test number	Number of the failed test (1-200)
Test address	Address where test failed ;(412 = most significant, 415 = least significant)
Expected data	Data pattern expected by the test when the diagnostics failed.
Received data	Data pattern received by the test
Suspected part	This field indicates the part suspected of causing the diagnostics to fail: <ul style="list-style-type: none"> <li>• Processor</li> <li>• Flash memory</li> <li>• Static RAM</li> <li>• Dual port RAM</li> <li>• S/UNI device</li> <li>• One FPGA</li> <li>• FPGA 1</li> <li>• FPGA 2</li> <li>• Write address FIFO</li> </ul>
Interface error	This field indicates whether an interface error has caused the diagnostics to fail.

## Audit Diagnostics

Audit diagnostics run continuously and verify that telecom devices are accessible and properly configured. If an error is found, the error information is stored at address offset 420-421.

To display the Audit Diagnostics results, enter the command **SHOW PORT slot.port ADDRESS 420** .

16 consecutive addresses from 420 are displayed. The results of the Audit diagnostics are shown in the first two bytes. Table 16 shows the possible values of the first two bytes and their meanings.

First two bytes (HEX)	Description
00 00	No error
00 01	Integration time failure
00 02	Decay time failure
00 03	Timing source failure
00 04	Unscramble received cell failure
00 05	Receive errors failure
00 06	Discard error cells failure
00 07	Discard idle cells failure
00 08	Scramble transmit cells failure
00 09	Generate transmit HEC failure
00 0A	Monitor signal label failure
00 0B	Monitor path trace failure
00 0C	Transmit path trace failure
00 0D	Expected receive path trace failure
00 0E	Coset polynomial failure
10 01	Terminal loopback
10 02	Facility loopback

**Note:** The value of the error result is reset to zero (00 00) 10 seconds after the error condition is resolved. (The default value of 10 seconds can be changed with the SET PORT slot.port PARM FAILURE\_DECAY\_TIME command.)

**Example:** The following example shows the value 00 01 in the first two bytes, indicating that the Audit diagnostics detected an integration time failure.

```
8265ATM> show port 2.2 parm address 420 [ENTER]
Actual value : 00 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00
8265ATM>
```



## On Demand Diagnostics

On Demand diagnostics can be run from terminal dialog. The diagnostic selections are not stored in flash memory, so, if the module is reset, the diagnostics settings will revert to the defaults.

A pattern of 8 bytes can be set to test the control interface between the ATM control point and the WAN2 module ATM port. ATM control point software can read the diagnostic pattern and write it back again in order to test the data path without affecting the operation of the port. The pattern is stored at address offset 070 through 07F.

**Displaying the Diagnostics Pattern:** To display the current diagnostics pattern, enter the **SHOW PORT VERBOSE** command. The diagnostics pattern is displayed under the heading 'Diagnostics Control' in the output from the command as shown here:

```
8265ATM> show port 3.2 verbose
:
DIAGNOSTICS CONTROL:
-----
Common for the card:
=====
Diagnostic Pattern           : 00 00 00 00 00 00 00 00
Performance Monitoring      : enabled

Specific for this port:
=====
Internal Wrap                : disabled
Reply Mode Wrap              : disabled
Payload Wrap                  : disabled
```

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**Setting a Diagnostics Pattern:** A value of 00 to 0F can be set for each of the 8 bytes (set to 00 for each byte by default).

To set a pattern, enter the following command:

```
SET PORT slot.port PARM ADDRESS xxx value [ENTER]
```

Where:

**xxx** Is the address of the byte to be set (070 through 07F). Only one byte may be set at a time. Repeat the command, changing the address to complete a pattern.

**value** Is the value to be applied to the setting. If no value is entered, the setting is displayed and may be altered if required.

### *Example*

```
8265ATM> set port 2.2 parm address 070 [ENTER]
Actual value : 01
Enter required value: 22 [ENTER]
8265ATM>
```

**Clearing Diagnostic Results:** To clear the results of the diagnostics, address 081 must be set to a value of 1. To do this, enter the following command:

```
SET PORT slot.port PARM ADDRESS 081 1 [ENTER]
```

**Failure Status:** The WAN2 module software continually monitors the ports for failure.

The Failure Status for individual ports can be displayed via the SHOW PORT VERBOSE command.

### Example

```
8265ATM> show port 3.2 verbose
:
FAILURE STATUS:
-----
Equipment Failure           : inactive
Loss of Signal              : inactive
E1 Alarm Indication Signal (AIS) : inactive
Loss of Frame               : inactive
E1 Red CFA Failure          : inactive
E1 Remote Alarm Indication (RAI) : inactive
Loss of Cell Delineation    : inactive
Loss of Synchronization    : inactive

FAILURE SUMMARY STATUS:
-----
                          No Failure
```

Table 17 on page 96 and Table 18 on page 96 list the possible failures displayed for T1 and E1 ports.

<i>Table 17. T1 Failure Status Fields</i>	
<b>Field</b>	<b>Description</b>
Equipment_failure	A value of 1 indicates that an equipment failure was detected.
Loss_of_signal	A value of 1 indicates that a Loss of Signal defect was detected.
Loss_of_frame	A value of 1 indicates that a Loss of Frame defect was detected, and a Loss of Signal failure is not present.
T1_red	A value of 1 indicates that a T1 Red CFA defect was detected.
T1_yellow	A value of 1 indicates that a T1 Yellow CFA defect was detected.
T1_ais	A value of 1 indicates that a T1 Alarm Indication Signal was detected.
Loss_of_cell_delin	A value of 1 indicates that a loss of cell delineation was detected.
Loss_of_synch	A value of 1 indicates that a synchronization error was detected.

<i>Table 18. E1 Failure Status Fields</i>	
<b>Field</b>	<b>Description</b>
Equipment_failure	A value of 1 indicates that an equipment failure was detected.
Loss_of_signal	A value of 1 indicates that a Loss of Signal defect was detected.
E1_ais	A value of 1 indicates that an E1 Alarm Indication Signal was detected.
Loss_of_frame	A value of 1 indicates that a Loss of Frame defect was detected, and a Loss of Signal failure is not present.
E1_red	A value of 1 indicates that an E1 Remote Alarm Indication Signal was detected.
E1_rai	A value of 1 indicates that an E1 Yellow CFA defect was detected.
Loss_of_cell_delin	A value of 1 indicates that a loss of cell delineation was detected.
Loss_of_synch	A value of 1 indicates that a synchronization error was detected.

---

## Monitoring Performance Statistics

When monitoring of performance statistics is enabled on a WAN2 port, the counter for each statistic type begins to be incremented. After an interval of 15 minutes, the total from each counter is moved to an historical total field for that interval, and the current counter is reset to 0.

The WAN2 module maintains historical totals for the last four 15-minute intervals for each statistic type.

## Enabling Performance Monitoring

To enable monitoring of performance statistics on a WAN2 port (for example, port 1 on slot 5), enter the following command:

```
8265ATM> set port 5.1 parm performance_monitoring enable
```

## Viewing Current Statistics

To view the current performance values for the same port (an E1 port), enter the following command:

```
8265ATM> show port 5.1 wan current_pm_counters

Time                               = 19 s
Line Code Violations                = 0
Line Errored Seconds                = 0
Line Severely Errored Seconds       = 0
Path Failure Count                  = 10
Path Errored Blocks                 = 0
Path Errored Seconds                = 1
Path Severely Errored Seconds       = 1
Path Background Block Error         = 0
Path Total Block Error              = 19000
Path Unavailable Seconds            = 0
Far End Path Invalid Data Flag      = 0
Far End Path Failure Count          = 0
Far End Path Errored Blocks         = 22
Far End Path Errored Seconds        = 0
Far End Path Severely Errored Secs  = 0
Far End Path Background Block Errs  = 0
Far End Path Total Block Error      = 0
Far End Path Unavailable Seconds    = 0
Uncorrectable HEC Errors            = 0
Receive Cells                       = 25252
Transmit Cells                      = 55541
```

The time shown is the elapsed time of the current interval.

## Viewing Historical Statistics

To view the performance values for this port over the last 60-minute period, enter the following command:

```
8265ATM> show port 5.1 verbose
:
Performance Monitoring Counters Historic :
-----
Line Code Violations           = (T-15) (T-30) (T-45) (T-60)
                               =      0      0      0      0
Line Errored Seconds           =      0      0      0      0
Line Severely Errored Seconds =      0      0      0      0
Path Failure Count             =      0      0      0      0
Path Errored Blocks            =      0      0      0      0
Path Errored Seconds           =      0      0      0      0
Path Severely Errored Seconds =      0      0      0      0
Path Background Block Error    =      0      0      0      0
Path Total Block Error         =      0      0      0      0
Path Unavailable Seconds       =      0      0      0      0
Far End Path Invalid Data Flag =      0      0      0      0
Far End Path Failure Count     =      0      0      0      0
Far End Path Errored Blocks    =      0      0      0      0
Far End Path Errored Seconds   =      0      0      0      0
Far End Path Severely Errored Secs=      0      0      0      0
Far End Path Background Block Errs=      0      0      0      0
Far End Path Total Block Error =      0      0      0      0
Far End Path Unavailable Seconds =      0      0      0      0
Uncorrectable HEC Errors       =      0      0      0      0
```

T-15 represents the last 15 minutes, T-30 the last 30 minutes, and so forth.

## Chapter 20. Changing Default WAN2 Port Settings

The default values for WAN2-specific port settings can be changed with the SET PORT command from the configuration console. This section describes how to display and change the default settings.

### Displaying and Changing WAN2-Specific Settings

WAN2-specific settings are divided into two general groups, depending on whether the SET PORT command uses **Parameter Names** or **Parameter Addresses** to enter the value of the setting.

### Named Settings

The following settings are changed using parameter names with the general syntax:

```

SET PORT with Named Settings
▶▶ SET PORT slot.port PARM parm_name value ▶▶

```

Setting	E1	T1	E3	DS3	OC3	STM1
Failure_Integration_Time	√	√	&check	√	√	&check
Failure_Decay_Time	√	√	&check	√	√	&check
Timing_Source	√	√	&check	√	√	&check
Descramble_Rcv_Cells	√	√	&check	√	√	&check
Discard_Idle_Cells	√	√	&check	√	√	&check
Scramble_Xmt_Cells	√	√	&check	√	√	&check
Correct_Rcv_Errors	√	√	&check	√	√	&check
T1_LBO		√				
T1_Format		√				

For a full description of these WAN2-specific port settings, see the appendix "Port-Specific SET PORT Parameters" in the *IBM 8265 Nways ATM Switch: Command Reference Guide*.

To display the current values for these settings use:

```

SHOW PORT for Named Settings
▶▶ SHOW PORT slot.port VERBOSE ▶▶

```

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**Example:** The following command sets the timing source to external timing on port 2 of slot 4.

```
8265ATM> set port 4.2 parm timing_source 0          [ENTER]
```

Port set.

```
8265ATM> show port 4.2 verbose                    [ENTER]
```

```
  ⋮  
CONFIGURATION CONTROL:  
-----  
Common for the card:  
=====
```

Failure Integration Time	:	2500 ms
Failure Decay Time	:	10 s

```
Specific for this port:  
=====
```

Timing Source	:	PARM_FACILITY_TMGM
Descramble Received Cells	:	Yes
Discard Idle Cells	:	Yes

```
  ⋮
```

```
8265ATM>
```



## Addressed Settings

The following settings are changed using parameter addresses with the general syntax:

**SET PORT with Addressed Settings**  
 ► SET PORT *slot.port* PARM ADDRESS *parm\_address* value ◄

Setting	E1	T1	E3	DS3	OC3	STM1
Enable Power On Diagnostics	√	√	&check	√	√	&check
Generate Header Error Control (HEC) Field	√	√	&check	√	√	&check
Add Coset Polynomial in ATM Cell Headers	√	√	&check	√		√
Set SA4 - SA8 Bits in Transmit E1	√					
Set T1 Termination Location		√				
Correct Header Errors			&check	√	√	&check
Discard ATM Cells with Uncorrectable Header			&check	√	√	&check
Select E3 Framing Format			&check			
Select E3 Transmit Timing Marker			&check			
Monitor Payload Type			&check			
Monitor Trail Mismatch Failures			&check			
Set Trail Trace Format			&check			
Transmit Trail Trace			&check			
Set Expected Trail Trace			&check			
Generate of RDI Signal			&check			
Select DS3 Framing Format				√		
Set DS3 Line Buildout				√		
Set PLCP Framing				√		
Set PLCP Timing Source				√		
Set Transmitting of Z Bytes				√		
Monitor Signal Label Mismatch Failures					√	&check
Set Path Trace Format						&check
Monitor Path Trace Mismatch Failures					√	&check
Set Transmitted Path Trace					√	&check
Set Expected Received Path Trace					√	&check

For a full description of the addresses and values that correspond to these WAN2-specific port settings, see the appendix “Port-Specific SET PORT Parameters” in the *IBM 8265 Nways ATM Switch: Command Reference Guide*.

To display the current values for these settings use:

**SHOW PORT for Addressed Settings**  
 ► SHOW PORT *slot.port* WAN ADDRESS *parm\_address* ◄

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**Example:** This example shows how to enable power on diagnostics:

```
8265ATM> set port 4.2 parm address 100 0
```

```
8265ATM> show port 4.2 wan address 100
```

```
Actual value: 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

```
8265ATM>
```

Note that 16 bytes are displayed, starting with address 100. The value **01** in the first byte (address 100), indicates that the diagnostics are enabled.

---

## Video Distribution Module

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---

## Chapter 21. Video Distribution Module Guidelines

---

### Installation

The Video Distribution Module is a media module that can be installed on the 8265 switch in **slots 1, 3, 5, and 7**.

#### Using 8260 Modules in the 8265

See Appendix C, "Backward Compatibility with 8260 Modules" on page 135 before attempting to use an existing 8260 Video Distribution Module in the 8265 switch.

---

### Documentation

For installation, configuration and troubleshooting instructions, refer to the Video Distribution Module documentation:

- [IBM Video Distribution Module: User's Guide GA27-4173](#)

**Note:** As of the time of publication of this guide, the documentation for the Video Distribution Module describes its use in an IBM 8260 Hub, but has not been updated to describe its use in the 8265 switch.









---

## Appendix A. Problem Determination

This chapter describes troubleshooting procedures associated with ATM media modules and their ports.

Troubleshooting procedures for the CPSW module, PVCs, and security settings, are described in the *IBM 8265 Nways ATM Switch: User's Guide*.

---

### Diagnosing ATM Media Module and ATM Port Problems

The following troubleshooting procedures are grouped into four sections:

**Module LED Error Diagnosis (on page 110)**

For problems with the module LEDs (Module Reset and Module Status) on the module's faceplate.

**SHOW MODULE Error Diagnosis (on page 113)**

For problems with module status messages displayed with the SHOW MODULE command.

**Port LED Error Diagnosis (on page 115)**

For problems with the port LEDs (Port Status, Port Activity, and Port Error) on the module's faceplate.

**SHOW PORT / SHOW VPC\_LINK Error Diagnosis (on page 118)**

For problems with port status messages displayed with the SHOW MODULE VERBOSE or SHOW PORT commands.

## Module LED Error Diagnosis

### First Test the LEDs

Before you start diagnosing LED errors, check that all LEDs are working by pressing the LED Test button on the Controller Module in the 8265 switch. All LEDs on the module should light ON. If not:

1. Check that there is sufficient power for the installed modules using the `SHOW POWER BUDGET` command.
2. Check the power supply LEDs on the Controller Module to be sure the power supplies are active.

If the LEDs still do not light ON, replace the module (see “Replacing an ATM Media Module” on page 131).

The possible LED states for the Module Reset and Module Status LEDs are shown in Table 19 and Table 20.

Procedures for diagnosing each of the LED error conditions are given below.

For the location of the Module Reset and Status LEDs on a specific module, see the installation chapter for that module.

*Table 19. States of Module LEDs (All Modules Except WAN2 Module)*

Normal Operation	Error Conditions
<ul style="list-style-type: none"><li>• Module Reset LED: OFF</li><li>• Module Status LED: ON</li><li>• Wrong Slot LED: OFF</li></ul>	<ul style="list-style-type: none"><li>• Module Reset LED: ON</li><li>• Module Reset LED: Blinking</li><li>• Module Reset LED: Does not flash ON after module inserted in slot</li><li>• Module Status LED: OFF</li><li>• Wrong Slot LED: ON</li></ul>

*Table 20. States of Multifunction Module LEDs (WAN2 Module only)*

Normal Operation	Error Conditions
<ul style="list-style-type: none"><li>• Module Status LED: Green-ON</li></ul>	<ul style="list-style-type: none"><li>• Module Status LED: OFF</li><li>• Module Status LED: Yellow-ON</li><li>• Module Status LED: Red-ON</li></ul>

## Correcting Module LED Errors

### Module Reset LED: ON [WAN2: Yellow-ON]

#### Possible Explanations:

- Bad connection to the ATM backplane
- Faulty module motherboard.

#### Steps to Take:

1. Check the module's connection to the backplane:
  - Remove the module and re-insert it in the same slot.
  - Insert the module in another slot.

2. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in “Wrap Tests” on page 123.

---

**Module Reset LED: Blinking****Possible Explanations:**

- No CPSW module is installed
- Bad connection between the media module or the CPSW module and the ATM backplane
- Faulty module motherboard.

**Steps to Take:**

1. Install a CPSW module in slots 9-10 or 11-12.
2. Check the module's connection to the backplane:
  - Remove the module and re-insert it in the same slot.
  - Insert the module in another slot.
3. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in “Wrap Tests” on page 123.

---

**Module Reset LED: Does not flash ON after module inserted in slot****Possible Explanations:**

- Not enough power
- Bad connection to the ATM backplane
- Faulty module motherboard.

**Steps to Take:**

1. Check that there enough power supplies installed.
2. Check the module's connection to the backplane:
  - Remove the module and re-insert it in the same slot.
  - Insert the module in another slot.
3. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in “Wrap Tests” on page 123.

---

**Module Status LED: OFF [WAN2: OFF]****Possible Explanations:**

- Module is ISOLATED from the network
- Module is not receiving power.
- Module cannot connect to CPSW.
- Module is faulty.

**Steps to Take:**

1. Connect the module to the network by entering the command `SET MODULE slot CONNECTED` from the configuration console.
2. Check that the module is receiving power:
  - Check the Power Supply LEDs on the 8265 Switch Controller Module.
  - Check the power budget by entering `SHOW POWER` from the configuration console.
3. Check the module's connection to the backplane:
  - Remove and re-insert the module in its slot.
  - Check that the CPSW is correctly plugged into the slot.

4. Replace the module.

---

**Wrong Slot LED: ON [WAN2: Red-ON]****Possible Explanations:**

- Module is not correctly inserted into the backplane
- Module is not installed in the correct slot.

**Steps to Take:**

1. Remove and re-insert the module in the same slot.
2. Remove the module from the switch and re-insert it into any other blank slot in positions 1-8 or 12-17.

---

## SHOW MODULE Error Diagnosis

Possible module statuses for an ATM media module that can be displayed with the SHOW MODULE command are:

Normal Operation	Error Conditions
<ul style="list-style-type: none"><li>• Connected</li><li>• Hardware OK</li><li>• Enable or Disable</li><li>• Normal</li></ul>	<ul style="list-style-type: none"><li>• Not Connected</li><li>• Pending</li><li>• Hardware KO</li><li>• Under Recovery</li><li>• Permanent Failure</li><li>• Power Failure</li></ul>

Procedures for diagnosing each of the module status error conditions are given below.

The use of the SHOW MODULE command is described in “Displaying Configuration Settings” on page 13.

## Correcting Module Status Errors

---

### Module Status: Not Connected

**Explanation:** Module is not connected to the CPSW module.

**Steps to Take:**

1. Connect the module to the network by entering the command `SET MODULE s1ot CONNECTED` from the configuration console.
2. Check that the module is receiving power:
  - Check the Power Supply LEDs on the 8265 Switch Controller Module.
  - Check the power budget by entering `SHOW POWER` from the configuration console.
3. Check the module's connection to the backplane:
  - Remove and re-insert the module in its slot.
  - Check that the CPSW is correctly plugged into the slot.
4. Replace the module.

---

### Module Status: Pending

**Explanation:** A module was previously inserted in this slot, and was connected to the network, but the module was removed.

**Steps to Take:**

1. Re-insert the module.

---

### Module Status: Hardware KO

**Explanation:** The CPSW module cannot communicate properly with the ATM media module.

**Steps to Take:**

1. Check that the CPSW module and the ATM media module are both properly inserted into the backplane.
2. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in “Wrap Tests” on page 123.

---

**Module Status: Under Recovery**

**Explanation:** The CPSW module is continuing to try to communicate with the ATM media module.

**Steps to Take:**

1. Check that the ATM media module is properly inserted into the backplane.
2. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in "Wrap Tests" on page 123.

---

**Module Status: Permanent Failure**

**Explanation:** The CPSW module failed to establish communication with the ATM media module after trying for approximately one minute.

**Steps to Take:**

1. Check that the CPSW module and the ATM media module are both properly inserted into the backplane, and then RESET the media module.
2. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in "Wrap Tests" on page 123.

---

## Port LED Error Diagnosis

**Note:** Before trying to diagnose a Port LED error, ensure that the Module LEDs indicate normal module operation, as described in “Module LED Error Diagnosis” on page 110.

The possible LED states for the Port Status, Port Activity, and Port Error LEDs are shown in Table 22 and Table 23.

Procedures for diagnosing each of the LED error conditions are given below.

For the location of the Port Status, Activity, and Error LEDs on a specific module, see the installation chapter for that module.

<b>Normal Operation</b>	<b>Error Conditions</b>
<ul style="list-style-type: none"><li>• Port Status LED: ON</li><li>• Port Activity LED: ON/OFF</li><li>• Port Error LED: OFF</li></ul>	<ul style="list-style-type: none"><li>• Port Status LED: OFF</li><li>• Port Status LED: Blinking</li><li>• Port Error LED: ON</li><li>• Port Error LED: Blinking</li></ul>

<b>Normal Operation</b>	<b>Error Conditions</b>
<ul style="list-style-type: none"><li>• Port Status LED: Green-ON, Yellow-ON, or Yellow-Blinking</li></ul>	<ul style="list-style-type: none"><li>• Port Status LED: Red-ON (WAN2 only)</li><li>• Port Status LED: Green-Blinking</li></ul>

## Correcting Port LED Errors

---

### **Port Status LED: OFF [WAN2/25Mbps: OFF]**

**Explanation:** Port is DISABLED.

**Steps to Take:** Enable the port with the SET PORT command.

---

### **Port Status LED: Blinking [WAN2/25Mbps: Green-Blinking]**

**Possible Explanations:**

- Cable attached to the port is faulty.
- The transmit and receive connectors of a fiber cable are swapped.
- The remote ATM device attached to the port is either turned OFF or not operating.
- Maximum link distance exceeded.

**Steps to Take:**

1. Check the cable attached to the port:
  - Check that the cable is the correct type.
  - Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in “Wrap Tests” on page 123.
2. Check that the transmit and receive connectors (on fiber cables) are correctly attached.
3. Check the remote device:
  - If the device is turned OFF, turn ON the device.

- If the device is not operating, restart the application running on it.
4. See the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide* for the maximum distances for valid connections.

---

**Port Activity LED: OFF****Possible Explanations:**

- Port is DISABLED.
- UNI port is enabled but not in service.
- Port is faulty.

**Steps to Take:**

1. Enable the port with the SET PORT command.
2. From the ATM host, make sure that the remote device has been assigned an ATM address and that the address is unique within the network.
3. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in "Wrap Tests" on page 123.

---

**Port Error LED: ON [WAN2: Red-ON]****Possible Explanations:**

- Port is faulty.
- Cable attached to the port is faulty.
- The remote ATM device attached to the port is either turned OFF or not operating.
- **(4-port 155 Mbps module only)** Bad signal (out of frame) or frame not recognized.
- **(4-port 155 Mbps module only)** The fiber cable was removed from the port, the connection has been broken, or no I/O card has been installed on the module.
- **(1-slot 622 Mbps module only)** The fiber cable was removed from the port, the connection has been broken.

**Steps to Take:**

1. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in "Wrap Tests" on page 123.
2. Check the cable attached to the port:
  - Check that the cable is the correct type.
  - Identify the faulty component by performing the wrap test that corresponds to the port type you are testing,
  - Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in "Wrap Tests" on page 123.
3. Check the remote device:
  - If the device is turned OFF, turn ON the device.
  - If the device is not operating, restart the application running on it.
  - See the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide* for the maximum distances for valid connections.
4. **(4-port 155 Mbps module and 1-slot 622 Mbps module only)** Reconnect the cable to the port, correct the broken connection, or install an I/O card on the module.
5. **(155Mbps port only)** Identify the faulty component by performing the wrap test for 155Mbps modules, as described in "Wrap Tests" on page 123.



---

## Port Error LED: Blinking

### Possible Explanations:

- Cable attached to the port is faulty.
- The remote ATM device attached to the port is either turned OFF or not operating.
- **(622Mbps module only)** Bad signal (out of frame) or frame not recognized.

### Steps to Take:

1. Check the cable attached to the port:
  - Check that the cable is the correct type. port type you are testing, as described in “Wrap Tests” on page 123. If the cable is faulty, replace it.
2. Check the remote device:
  - If the device is turned OFF, turn ON the device.
  - If the device is not operating, restart the application running on it.
  - See the *IBM 8265 Nways ATM Switch: Planning and Site Preparation Guide* for the maximum distances for valid connections.
3. **(622Mbps port only)** Identify the faulty component by performing the wrap test for 622Mbps modules, as described in “Wrap Tests” on page 123.

## SHOW PORT / SHOW VPC\_LINK Error Diagnosis

**Note:** Before trying to diagnose a SHOW PORT or SHOW VPC\_LINK error, ensure that the SHOW MODULE command indicates normal module operation, as described in “SHOW MODULE Error Diagnosis” on page 113.

### SHOW PORT

Possible port statuses for an ATM port that can be displayed with the SHOW PORT or SHOW MODULE VERBOSE commands are:

<i>Table 24. Port Status Messages from SHOW PORT or SHOW MODULE VERBOSE</i>	
Normal Operation	Error Conditions
<ul style="list-style-type: none"> <li>• DOWN: Establishing (<i>transient</i>)</li> <li>• DOWN: Configuring (<i>transient</i>)</li> <li>• DOWN: Retrieving (<i>transient</i>)</li> <li>• UP: Registering (<i>transient</i>)</li> <li>• UP</li> </ul>	<ul style="list-style-type: none"> <li>• DOWN: Bad FPGA level</li> <li>• DOWN: Connection limit reached</li> <li>• DOWN: Duplicate VPC</li> <li>• DOWN: Error detected</li> <li>• DOWN: Hardware error</li> <li>• DOWN: Inconsistency in bandwidth</li> <li>• DOWN: Internal error</li> <li>• DOWN: Invalid VPI-VCI range</li> <li>• DOWN: Module not operational</li> <li>• DOWN: Not in service</li> <li>• DOWN: Signalling version missing</li> <li>• DOWN: VPC limit reached</li> <li>• DOWN: Establishing (<i>continual</i>)</li> <li>• DOWN: Configuring (<i>continual</i>)</li> <li>• No activity</li> <li>• Security violation</li> </ul>

### SHOW VPC\_LINK

Possible statuses for a VPC that can be displayed with the SHOW VPC\_LINK command are:

<i>Table 25. Port Status Messages from SHOW VPC_LINK</i>	
Normal Operation	Error Conditions
<ul style="list-style-type: none"> <li>• DOWN: Establishing (<i>transient</i>)</li> <li>• DOWN: Configuring (<i>transient</i>)</li> <li>• DOWN: Retrieving (<i>transient</i>)</li> <li>• UP: Registering (<i>transient</i>)</li> <li>• UP</li> </ul>	<ul style="list-style-type: none"> <li>• DOWN: Connection limit reached</li> <li>• DOWN: Duplicate VPC</li> <li>• DOWN: Error detected</li> <li>• DOWN: Inconsistency in bandwidth</li> <li>• DOWN: Internal error</li> <li>• DOWN: Invalid VPI-VCI range</li> <li>• DOWN: Signalling version missing</li> <li>• DOWN: VPC limit reached</li> <li>• DOWN: Establishing (<i>continual</i>)</li> <li>• DOWN: Configuring (<i>continual</i>)</li> <li>• Port not ready</li> <li>• Invalid VP range</li> </ul>

Procedures for diagnosing each of the port/VPC status error conditions are given below.

The use of the SHOW PORT and SHOW MODULE VERBOSE commands is described in “Displaying Configuration Settings” on page 13.

## Correcting Port / VPC Status Errors

---

### Port Status: DOWN: Bad FPGA level

**Explanation:** The FPGA of the media module is not compatible with the FPGA of the ATM Control Point. Check the prerequisites in the Release Notes.

**Steps to Take:**

1. Upgrade the FPGA of the media module.

---

### Port / VPC Status: DOWN: Connection limit reached

**Explanation:** The maximum number of connections (including point-to-point and point-to-multipoint) allowed has been reached, either at the port level or module level. The maximum number allowed is 4064.

---

### Port / VPC Status: DOWN: Duplicate VPC

**Explanation:** When a port is enabled, it is enabled with its associated VPI. The VPI is already in use for this port.

**Steps to Take:**

1. Delete the existing VPC is not required, and disable/enable the port.
2. Disable the port, then re-enable it with a different VPI value.

---

### Port / VPC Status: DOWN: Error detected

**Explanation:** This indicates an ILMI protocol error. This status may be a result of a security violation on the port.

**Steps to Take:**

1. Enter the SHOW SECURITY PORT command to check that security is enabled for this port.
2. Enter the SHOW SECURITY LAST\_VIOLATION command to check if an address registration has been rejected on the port.
3. Check that the attached device supports ILMI.
4. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in “Wrap Tests” on page 123.
5. Re-enable the port.

---

### Port Status: DOWN: Hardware error

**Explanation:** The microcode encountered an error when setting the hardware.

**Steps to Take:**

1. RESET the module.
2. Check that the CPSW module and the ATM media module are both properly inserted into the backplane.
3. Move the media module to another slot.
4. Call your IBM service representative.

---

**Port / VPC Status: DOWN: Inconsistency in bandwidth**

**Explanation:** The bandwidth specifications are different at each end of a connection.

**Steps to Take:**

1. Use the SHOW PORT command to display the bandwidth specifications for each port.
2. Use the SET PORT command to ensure that the values match.

---

**Port / VPC Status: DOWN: Internal error**

**Explanation:** An internal error is detected on the port.

**Steps to Take:**

1. Reset the module using the RESET MODULE command.
2. If the problem persists, call your IBM service representative.

---

**Port / VPC Status: DOWN: Invalid VPI-VCI range**

**Explanation:** The VPI-VCI range entered for a given port is invalid.

**Steps to Take:**

1. Make sure that the range specified for the port is valid, and that the same range is applied at the other end of the connection. See the *IBM 8265 Nways ATM Switch: Command Reference Guide* for valid settings.

---

**Port Status: DOWN: Module not operational**

**Explanation:** The module cannot be made operational.

**Steps to Take:**

1. Use the SHOW MODULE VERBOSE command to display more information.
2. Check that the module is correctly installed.
3. Check that the module is connected to the network using the SET MODULE CONNECTED command.
4. Check that the module is receiving power using the SHOW HUB command.
5. Check that the FPGA level of the module is supported.
6. If the problem persists, replace the module.

---

**Port Status: DOWN: Not In Service**

**Explanation:** Physical layer activity is detected (there is a receive signal on the Receive fiber/cable) but the remote device is not responding to ILMI polling.

**Steps to Take:**

1. Use the command SHOW PORT slot.port VERBOSE command to determine the problem.
2. Check that the remote device is operational and that its adapter is securely plugged in.
3. Make sure that the fiber/cable is securely plugged on the 8265 switch.
4. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in "Wrap Tests" on page 123.
5. The peer device does not support ILMI. Change the UNI port configuration to suppress ILMI.
6. A PVC with VPI=0 is or was defined on that port. Release the PVC and disable/enable the port.
7. The transmit wire/fiber of the cable is defective. Replace the cable.
8. **(UNI only)** Some devices have restricted ILMI implementation and cannot access address registration if an LECS is defined in the 8265 switch.

Check that you have an LECS address configured in your 8265 switch with the command SHOW LAN\_EMUL CONFIGURATION\_SERVER command. If there should not be any LECS address defined, clear it with the CLEAR LAN\_EMUL CONFIGURATION\_SERVER ALL command.

9. Take traces from both the 8265 switch and the remote device for an IBM service engineer.

---

**Port / VPC Status: DOWN: Signalling version missing**

**Explanation:** The signalling version must be specified if the interface does not support ILMI. The signalling version was not specified for a UNI or IISP port or VPCs.

**Steps to Take:**

1. Disable the port
2. Redefine the port specifying the signalling version for the attached device
3. Re-enable the port.

---

**Port / VPC Status: DOWN: VPC limit reached**

**Explanation:** The maximum number of VPCs (512) has been reached.

**Steps to Take:**

1. Delete an existing VPC to allow the creation of a new one.

---

**Port Status: DOWN: Establishing**

**Explanation:** Physical layer activity is detected (there is a receive signal on the Receive fiber/cable) but the remote device is not responding to ILMI polling.

**Steps to Take:**

1. Use the command SHOW PORT slot.port VERBOSE command to determine the problem.
2. Check that the remote device is operational and that its adapter is securely plugged in.
3. Make sure that the fiber/cable is securely plugged on the 8265 switch.
4. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in "Wrap Tests" on page 123.
5. The peer device does not support ILMI. Change the UNI port configuration to suppress ILMI.
6. A PVC with VPI=0 is or was defined on that port. Release the PVC and disable/enable the port.
7. The transmit wire/fiber of the cable is defective. Replace the cable.
8. **(UNI only)** Some devices have restricted ILMI implementation and cannot access address registration if an LECS is defined in the 8265 switch.

Check that you have an LECS address configured in your 8265 switch with the command SHOW LAN\_EMUL CONFIGURATION\_SERVER command. If there should not be any LECS address defined, clear it with the CLEAR LAN\_EMUL CONFIGURATION\_SERVER ALL command.

9. Take traces from both the 8265 switch and the remote device for an IBM service engineer.

---

**Port / VPC Status: DOWN: Configuring**

**Explanation:** When interface type is AUTO, indicates that the remote ILMI does not support full ILMI 4.0. Automatic configuration is not possible. An "Auto-configuration impossible" message is logged in the error log.

**Steps to Take:** Re-enable the port or VPC and specify the interface type as UNI, IISP, or PNNI.

---

**Port Status: No activity**

**Explanation:** No physical layer activity is detected (either there is no cable/fiber attached, or there is no signal on the Receive cable/fiber).

**Steps to Take:**

1. See if the port is enabled by entering the SHOW PORT command.
2. If the port is not enabled, use the SET PORT command to set the mode parameter to enable.
3. If the port is enabled, make sure that the remote device is operational and that its adapter is securely plugged in.
4. Make sure that the fiber/cable is securely plugged on the module.
5. Identify the faulty component by performing the wrap test that corresponds to the port type you are testing, as described in "Wrap Tests" on page 123.
6. For SC-type connectors, check that the receive and transmit cables/fibers are not swapped.
7. For 25Mbps PNNI ports, make sure that cables used to interconnect switches have their receive and transmit signals swapped.

---

**Port Status: Security violation**

**Explanation:** A security violation was detected on the port.

**Steps to Take:**

1. Enter the SHOW SECURITY PORT command to check that security is enabled for this port.
2. Enter the SHOW SECURITY LAST\_VIOLATION command to check if an address registration has been rejected on the port.

---

**VPC Status: Port not ready**

**Explanation:** ????

**Steps to Take:**

1. ????

---

**VPC Status: Invalid VP range**

**Explanation:** ????

**Steps to Take:**

1. ????

---

## Wrap Tests

The wrap tests that can be performed on an ATM port depend on the type of port it is:

To test port type:	Perform this wrap test:
100, 155, 622 Mbps, E3, OC3, STM1	“Standard Wrap Test” on page 124
25 Mbps	“Wrap Test for 25 Mbps Ports” on page 125
E1	“Wrap Test for E1 Ports” on page 126
T1	“Wrap Test for T1 Ports” on page 127
DS3	“Wrap Test for DS3 Ports” on page 128

## Viewing Wrap Settings

To view the current wrap settings for a port enter the **SHOW PORT VERBOSE** command.

```
8265ATM> show port 3.2 verbose
:
Specific for this port:
=====
Internal Wrap           : disabled
Reply Mode Wrap        : disabled
```

## Standard Wrap Test

**Note:** Before performing this wrap test ensure that the module you are testing is CONNECTED, and the port you are testing is DISABLED.

Wrap Test	Test Result: OK Test Successful	Test Result: KO Test Failed
<b>1. INTERNAL:</b> Perform the procedure under "INTERNAL Wrap Test" on page 129.	Proceed to step 2.	The motherboard of the module is faulty. Replace the module.
<b>2. EXTERNAL:</b> Perform the procedure under "EXTERNAL Wrap Test" on page 129.	<b>Connection to an ATM switch:</b> Proceed to step 3.  <b>Connection to a user device:</b> The problem is not in the ATM media module. Return to the troubleshooting procedure or call your IBM service representative.	The I/O card or port is faulty. Replace the I/O card or module.
<b>3. REPLY_MODE:</b> Perform the procedure under "REPLY_MODE Wrap Test" on page 129.	The problem is on the remote switch. Perform the INTERNAL and EXTERNAL wrap tests on the remote port to identify the faulty component.	The cabling is faulty. Replace the faulty cable.



## Wrap Test for 25 Mbps Ports

**Note:** Before performing this wrap test ensure that the module you are testing is CONNECTED, and the port you are testing is DISABLED.

<b>Wrap Test</b>	<b>Test Result: OK Test Successful</b>	<b>Test Result: KO Test Failed</b>
<b>1. EXTERNAL:</b> Perform the procedure under “EXTERNAL Wrap Test” on page 129.	The problem is not in the ATM media module. Return to the troubleshooting procedure or call your IBM service representative.	The I/O card or port is faulty. Replace the I/O card or module.

## Wrap Test for E1 Ports

**Note:** Before performing this wrap test ensure that the module you are testing is CONNECTED, and the port you are testing is DISABLED.

Wrap Test	Test Result: OK Test Successful	Test Result: KO Test Failed
<b>1. INTERNAL:</b> Perform the procedure under "INTERNAL Wrap Test" on page 129.	Proceed to step 2.	The motherboard of the module is faulty. Replace the module.
<b>2. EXTERNAL:</b> Perform the procedure under "EXTERNAL Wrap Test" on page 129.	Proceed to step 3.	The I/O card or port is faulty. Replace the I/O card or module.
<b>3. REPLY_MODE:</b> Perform the procedure under "REPLY_MODE Wrap Test" on page 129.	The problem is on the remote switch. Proceed to step 4.	The cabling is faulty. Replace the faulty cable.
<b>4. PAYLOAD:</b> Perform the procedure under "PAYLOAD Wrap Test" on page 130.	The problem is on the remote switch.	Either the cabling is faulty, and should be replaced, or the transceiver on the remote switch is faulty.

## Wrap Test for T1 Ports

**Note:** Before performing this wrap test ensure that the module you are testing is CONNECTED, and the port you are testing is DISABLED.

Wrap Test	Test Result: OK Test Successful	Test Result: KO Test Failed
<b>1. INTERNAL:</b> Perform the procedure under "INTERNAL Wrap Test" on page 129.	Proceed to step 2.	The motherboard of the module is faulty. Replace the module.
<b>2. EXTERNAL:</b> Perform the procedure under "EXTERNAL Wrap Test" on page 129.	Proceed to step 3.	The I/O card or port is faulty. Replace the I/O card or module.
<b>3. REPLY_MODE:</b> Perform the procedure under "REPLY_MODE Wrap Test" on page 129.	The problem is on the remote switch. Proceed to step 4.	The cabling is faulty. Replace the faulty cable.
<b>4. PAYLOAD:</b> Perform the procedure under "PAYLOAD Wrap Test" on page 130.	The problem is on the remote switch. Proceed to step 5.	Either the cabling is faulty, and should be replaced, or the transceiver on the remote switch is faulty.
<b>5. FAR_END_MODE:</b> Perform the procedure under "FAR_END_MODE Wrap Test" on page 130.	The problem is on the remote switch. Proceed to step 6.	The cabling is faulty, and should be replaced.
<b>6. FAR_END_PAY_LOAD:</b> Perform the procedure under "FAR_END_PAYLOAD Wrap Test" on page 130.	The problem is on the remote switch.	The cabling is faulty, and should be replaced.

## Wrap Test for DS3 Ports

**Note:** Before performing this wrap test ensure that the module you are testing is CONNECTED, and the port you are testing is DISABLED.

Wrap Test	Test Result: OK Test Successful	Test Result: KO Test Failed
<b>1. INTERNAL:</b> Perform the procedure under "INTERNAL Wrap Test" on page 129.	Proceed to step 2.	The motherboard of the module is faulty. Replace the module.
<b>2. EXTERNAL:</b> Perform the procedure under "EXTERNAL Wrap Test" on page 129.	Proceed to step 3.	The I/O card or port is faulty. Replace the I/O card or module.
<b>3. REPLY_MODE:</b> Perform the procedure under "REPLY_MODE Wrap Test" on page 129.	The problem is on the remote switch. Proceed to step 4.	The cabling is faulty. Replace the faulty cable.
<b>4. FAR_END_MODE:</b> Perform the procedure under "FAR_END_MODE Wrap Test" on page 130.	The problem is on the remote switch.	The cabling is faulty, and should be replaced.

## INTERNAL Wrap Test

- \_\_\_ **1** Disconnect the cable from the port.
- \_\_\_ **2** Enter the command `WRAP slot.port INTERNAL`.
- \_\_\_ **3** Note the **test result** that appears on the local configuration console.

## EXTERNAL Wrap Test

- \_\_\_ **1** Insert the appropriate wrap plug in the port.
- \_\_\_ **2** Enter the command `WRAP slot.port EXTERNAL`.
- \_\_\_ **3** Note the **test result** that appears on the local configuration console.

## REPLY\_MODE Wrap Test

- \_\_\_ **1** Remove the wrap plug and reattach the cable to the port.
- \_\_\_ **2** Disable the remote port by entering the command `SET PORT slot.port DISABLE` from the remote switch's configuration console.
- \_\_\_ **3** Enable the wrap procedure on the remote port by entering the command `WRAP slot.port REPLY_MODE ENABLE` from the remote switch's configuration console.
- \_\_\_ **4** From the local configuration console, enter the command `WRAP slot.port EXTERNAL`. This command sends a signal across the connection to the remote (wrapped) port.
- \_\_\_ **5** Note the **test result** that appears on the local configuration console.
- \_\_\_ **6** Disable the wrap procedure on the remote port by entering the command `WRAP slot.port REPLY_MODE DISABLE` from the remote switch's configuration console.

## PAYLOAD Wrap Test

- \_\_\_ **1** Enable the wrap procedure on the remote port by entering the command `WRAP slot.port PAYLOAD ENABLE` on the remote switch's configuration console.
- \_\_\_ **2** From the local configuration console enter the command `WRAP slot.port EXTERNAL`. This command sends a signal across the connection to the remote (wrapped) port. The test result appears on the local configuration console.
- \_\_\_ **3** Note the **test result** that appears on the local configuration console.
- \_\_\_ **4** Disable the wrap procedure on the remote port by entering `WRAP slot.port PAYLOAD DISABLE` from the remote switch's configuration console.

## FAR\_END\_MODE Wrap Test

To perform a FAR\_END\_MODE wrap test:

- \_\_\_ **1** Enter the command `WRAP slot.port FAR_END_MODE ENABLE`.
- \_\_\_ **2** Enter the command `WRAP slot.port FAR_END_TEST`. The test result appears on the local configuration console.
- \_\_\_ **3** Note the **test result** that appears on the local configuration console.
- \_\_\_ **4** Enter the command `WRAP slot.port FAR_END_MODE DISABLE`.

## FAR\_END\_PAYLOAD Wrap Test

- \_\_\_ **1** Enter the command `WRAP slot.port FAR_END_PAYLOAD ENABLE`.
- \_\_\_ **2** Enter the command `WRAP slot.port FAR_END_TEST`. The test result appears on the local configuration console.
- \_\_\_ **3** Note the **test result** that appears on the local configuration console.
- \_\_\_ **4** Enter the command `WRAP slot.port FAR_END_PAYLOAD DISABLE`.

---

## Replacing an ATM Media Module

Troubleshooting procedures sometimes instruct you to replace a faulty ATM media module. To do so, follow these steps:

- **1** Enter SET MODULE slot ISOLATED where slot is the slot number of the failed module. Then press Enter.
- **2** Remove the failed module and insert another ATM media module of the same type in its slot.
- **3** Enter SET MODULE slot CONNECTED where slot is the slot number of the new module. Then press Enter.

The new module is automatically configured with the last settings configured for the slot number you entered.

---

## Resetting a Module

By pressing the Module Reset button, you interrupt and reset the operation of an ATM media module. All ATM data traffic and connections that are being transmitted are stopped. The change in status of the module (from normal operation to reset status) is reported to the CPSW.

Pressing the Module Reset Button is equivalent to entering the command RESET MODULE.





---

## Appendix B. Upgrading Port Microcode

Microcode updates for ATM media module modules and I/O cards may be downloaded via the Internet, using the World Wide Web at URL:

WWW: <http://www.networking.ibm.com/>

This is the IBM Networking home page. From here, you can access product announcements, publications information, and information regarding hardware and software updates.

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### Upgrading the Microcode

To upgrade ATM port microcode, ATM network administrators, using the ATM console, perform inband operations from a server connected to an 8265 switch.

After locating the directory where the microcode updates are stored, log on using the administrator password, and enter the following ATM commands:

1. SET TFTP SERVER\_IP\_ADDRESS (to define the server where the microcode is stored)
2. SET TFTP FILE\_NAME (to define the pathname of the file on the server)
3. SET TFTP FILE\_TYPE PORT
4. SET TFTP TARGET\_PORT slot.port (where slot identifies the location of the module, and port identifies the port to be updated)
5. DOWNLOAD (to load the microcode).

## Upgrading Port Microcode

## Appendix C. Backward Compatibility with 8260 Modules

The 8260 ATM media modules listed in Table 26 can be installed in the 8265 switch providing their FPGA code has been upgraded to the code level indicated for each module.

*Table 26. Minimum FPGA Code Levels for 8260 ATM Media Modules*

Module	Faceplate	FPGA Code Level
3-Port 155 Mbps Flex Module	A3-MB155	C31
2-Port 155 Mbps Flex Module	A2-MB155	B50
4-Port 100 Mbps Module	A4-SC100	B50
MSS Server Module	A-MSS	B50
8281 ATM LAN Bridge	A04MB-BRG	B50
12-Port 25 Mbps Module	A12-TP25	C30
8271 LAN Switch Module	A-TR8LS2 / A-TR8LS4	B50
8272 LAN Switch Module	A-E12LS2 / A-E12LS4	B50
ATM WAN2 Module	A8-WAN	C32
ATM WAN Module	A2-WAN	B50
Video Distribution Module	A8-MPEG	B50

**Attention:** The microcode for these modules **must be upgraded on the 8260 hub before** attempting to install them on an 8265 switch.



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## Appendix D. Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates.

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## Industry Standards Reflected in This Product

IBM ATM media modules and I/O cards comply with the following ATM standards:

- ATM User-Network Interface (UNI) Specification V3.0, V3.1, and 4.0 ATM Forum
- ATM Private Network-Network Interface (PNNI) Phase 1 Specification V1.0, ATM Forum
- LAN Emulation Over ATM Specifications V1.0, ATM Forum
- Q.2110 Service Specific Connection-Oriented Protocol (SSCOP), ITU, March 17, 1994
- Q.2130 Service Specific Coordination Function (SSCF) for support of signaling at the user-network interface, March 17, 1994.

ATM media modules are designed according to the specifications of the following industry standards as understood and interpreted by IBM as of September 1994:

- RFC854 - TELNET protocol
- RFC1350 - Trivial File Transfer Protocol (TFTP)
- RFC1577 - Classical IP and ARP (Address Resolution Protocol) over ATM
- SNMP:
  - RFC1155 - Structure and Identification of Management Information (SMI) for TCP/IP based Internet.
  - RFC1156 - Management Information Base (MIB) for network management of TCP/IP based Internets (MIB-I)
  - RFC1157 - Simple Network Management Protocol (SNMP)
  - RFC1212 - Concise MIB definitions
  - RFC1213 - Management Information Base (MIB) for network management of TCP/IP based Internets (MIB-II)
  - RFC1215 - Convention for defining traps for use with SNMP.

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## Bibliography

For additional information on the IBM 8265 ATM Switch, please refer to the following documents:

*IBM 8265 Nways ATM Switch Product Description*, GA33-0449.

*IBM 8265 Nways ATM Switch Command Reference Guide*, SA33-0458.

*IBM 8265 Nways ATM Switch Installation Guide*, SA33-0441.

*IBM 8265 Nways ATM Switch Planning and Site Preparation Guide*, GA33-0460.

*IBM 8265 Nways ATM Switch Media Module Reference Guide*, SA33-0381.

*Nways Multiprotocol Switched Services Server: Interface Configuration and Software User's Guide*, SC30-3818.

*Nways Multiprotocol Switched Services Server: Configuring Protocols and Features*, SC30-3819.

*Multiprotocol Switched Services (MSS) Server Service Manual*, GY27-0354.

*Multiprotocol Switched Services (MSS) Server Setup and Problem Determination Guide*, GA27-4140.

*Nways Multiprotocol Switched Services (MSS) Server Module Setup and Problem Determination Guide*, GA27-4141.

*Nways MAS/MRS/MSS Library, Configuration Program User's Guide for Nways Multiprotocol Access, Routing and Switched Services*, GC30-3830.

*Nways Event Logging System Messages Guide*, SC30-3682.

*8271 LAN Switch Module Planning and Installation Guide*, GA27-4162.

*8272 LAN Switch Module Planning and Installation Guide*, GA27-4163.

*4-Port 10BASE-T & 3-Port 10BASE-FL UFCs Planning and Installation Guide*, GA27-4120.

*100BASE-TX and 100BASE-FX Universal Feature Cards Planning and Installation Guide*, GA27-4096.

*ATM 155Mbps Multimode Fiber Universal Feature Card Planning and Installation Guide*, GA27-4156.

*2-Port Fiber and 4-Port UTP/STP Token-Ring Enhanced Universal Feature Card Planning and Installation Guide*, GA27-4168.

*IBM Video Distribution Module User's Guide*, GA27-4173.

*The 8260 Nways ATM Kit Development Program, We Carry Your Creativity to ATM*, GA33-0371.

### The ATM Forum:

- *UNI Specification – Versions 3.0, 3.1, and 4.0*
- *P-NNI Specification Version 1.0*
- *ILMI Specification Version 4.0*
- *UNI Traffic Management Version 4.0*





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