

Note

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2nd Edition (March 1996)

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Safety Notices



Danger: Before you begin to install this product, read the safety information in *Caution: Safety Information—Read This First*, SD21-0030. This booklet describes safe procedures for cabling and plugging in electrical equipment.

Prerequisite Publications

Caution: Safety Information—Read This First, Form Number SD21-0030-02
Universal Feature Card Notices and Warranties, Part Number 72H3407
8271 EtherStreamer Switch Planning and Installation Guide, Form Number G224-4425

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Universal Feature Card Slot

The Universal Feature Card (UFC) slot is a feature of the IBM 8271 Nways Ethernet LAN Switch. Hereafter, the term *base machine* applies to any machine with a UFC slot that is functionally equivalent to the one in the 8271. The UFC slot will accommodate optional, field-installable, UFCs that provide additional connections. The first UFCs will provide the following types of connections:

- One-Port 100BASE-FX Ethernet
- One-Port 100BASE-TX Ethernet
- Four-Port 10BASE-T Ethernet
- Three-Port 10BASE-FL Ethernet

Note: A three-ring binder was included with the base machine to accommodate both the base machine manual and any related publications. It is recommended that this manual be placed in that binder.

The 100BASE-TX and the 100BASE-FX UFCs

Each UFC provides one 100-Mbps Ethernet port for the 8271. This port is configured in the same manner as the fixed Ethernet ports. The UFC port can be included in any virtual switch and then can be configured with address filters. However, the following exceptions apply:

- 100 Mbps ports cannot be included in EtherPipes.
- The EtherProbe port cannot be configured to monitor these ports.

The 1-port 100BASE-TX UFC provides one 100BASE-TX port with a shielded RJ-45 connector suitable for connection to either a shared, 100-Mbps Ethernet segment via a compatible 100-Mbps repeater or a dedicated connection directly to a compatible 100-Mbps Ethernet adapter, such as the IBM 100/10 PCI Ethernet Adapter and the IBM 100/10 ISA Ethernet Adapter. Fully compliant with IEEE 802.3u specifications, the 100BASE-TX UFC supports connections via 100-ohm, unshielded twisted-pair category 5 (UTP-5) cable and 100-ohm, foil-twisted pair (FTP) category 5 cable at distances up to 100 meters (328 feet). The 100BASE-TX port can be configured for either half-duplex (HDX) communication for connection to a shared, 100-Mbps, Ethernet segment or for full-duplex (FDX) communication (200-Mbps) for dedicated Ethernet connections.

The 1-Port 100BASE-FX UFC provides one 100BASE-FX multimode fiber connection via ST** connectors, suitable for either HDX (100-Mbps Ethernet) or FDX (200-Mbps Ethernet) connection at distances up to 2 kilometers (1.2 miles). Connect a port on the UFC to a port on an Ethernet-compatible repeater or hub to establish shared connections. Connect this port directly to a compatible Ethernet adapter to establish a dedicated connection.

Package Contents

Along with this manual, your UFC package should contain:

- One Universal Feature Card
- One MIB diskette (for 100BASE-FX only)
- One Safety Manual
- One Notices and Warranties booklet

If any item is missing or damaged, contact your place of purchase.

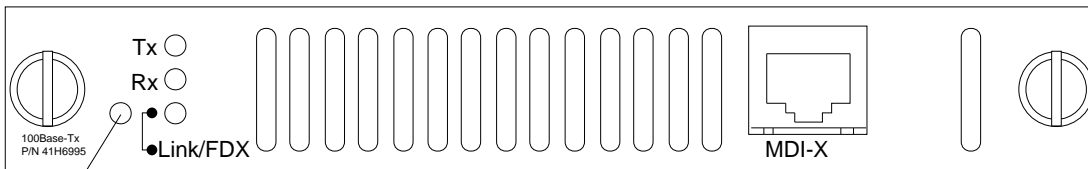
LEDs

The UFC has four LEDs. See Figure 1 and Figure 2 for the locations of the LEDs.

Table 1 lists the LEDs and their meanings.

Table 1. LEDs and Their Meanings

LED	Position	Color	Meaning When On
Tx	Top	Green	Data is being transmitted by the port.
Rx	Middle	Green	Data is being received by the port.
Link/FDX (bicolor)	Bottom right	Green	A cable is connected to the port and the port detects link pulses from the device at the other end of the cable.
		Amber	The port is in FDX mode and link is good.
Testing/Fault (unlabeled)	Bottom left	Amber	The internal tests of the UFC are running. If the LED stays on after the base machine has completed diagnostics, the UFC might be defective. Go to “Testing the UFC” on page 5.



Testing/Fault

Figure 1. Locations of LEDs and Connector on the 100BASE-TX UFC

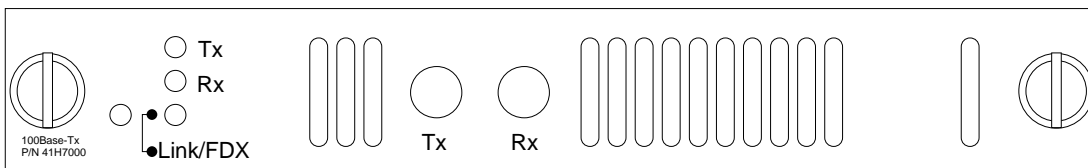


Figure 2. Locations of LEDs and Connector on the 100BASE-FX UFC

Planning for Installation

The 100BASE-TX UFC requires the use of 100-ohm, UTP or FTP category 5 cable. All 100BASE-TX links, including cables, wall-plates, patch panels, accessories, and wiring closet equipment must be made using category 5 equipment.

You should also be aware that the 100BASE-TX port is a Media Dependent Interface Crossed (MDI-X) port, when you are choosing between straight-through and crossover cables. Crossover cables are used when connecting like ports, Media Dependent Interface (MDI) to MDI or MDI-X to MDI-X. Straight-through cables are used to connect unlike ports, MDI to MDI-X.

For the 100BASE-FX UFC, multimode optical fiber cable is available in 62.5/125-, 50/125-, and 100/140-micron fiber types. For fiber cabling, 62.5/125-micron,

multimode optical cable is recommended. All optical fiber cable should meet the international standard (ISO/IEC 11801) or the North American cabling standard (EIA/TIA 568A).

Detailed planning procedures are documented in the base machine publication.

Installing a Universal Feature Card

Follow these steps to install a UFC.

- Step 1** Power OFF the base machine by disconnecting the AC power cord from the outlet.
- Step 2** Remove the plate covering the UFC slot on the front of the base machine by removing the two screws holding it in place. Retain the plate and screws for use in the event that the UFC is ever removed.
- Step 3** Insert the card into the rails on each side of the UFC slot carefully, sliding it back until the the connector on the card is seated in the connector at the back of the slot. See Figure 3. When the card is fully seated, the UFC faceplate will rest against the front of the base machine.
- Step 4** Secure the card with the two attached thumbscrews.

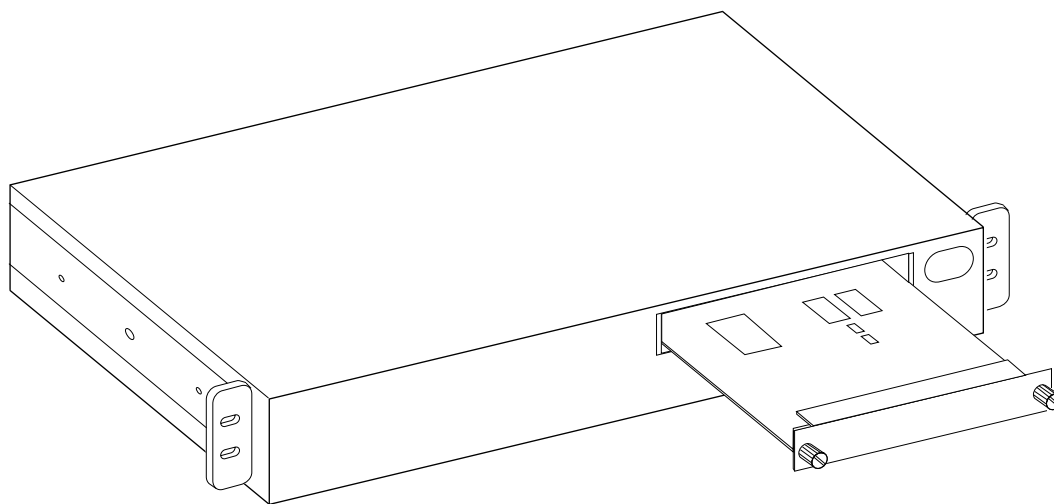


Figure 3. Installing a Universal Feature Card

- Step 5** Continue with the instructions under “Updating the Microcode.”

Updating the Microcode

You might need to update your microcode to support these UFCs before you configure the UFC port. To determine whether or not you need to do this, perform the following check:

- Step 1** Start a console session using the procedure in your base machine documentation. Or you can conduct a Telnet session through your SNMP management station.
- Step 2** Go to the Switch Information panel, one of the selections on the Configuration panel.

Step 3 Make sure that the value of the Interface Description entry for Software is 9.1 or higher.

Step 4 If the software level is 9.1 or higher, you do not need to update the base machine microcode. Continue with “Cabling Tips.”

Step 5 If the software level is not 9.1 or higher, you must update the base machine microcode. To do so, refer to the section entitled “Downloading Software and BootP Information” in the base machine documentation.

Microcode level 9.1 is on the MIB diskette that shipped with your UFC. The file name is 8271E_20.GZ.

Then, continue with “Cabling Tips”

Obtaining Microcode Updates from the Web

You can obtain 8271 microcode updates at the following URL.

<http://www.raleigh.ibm.com/821/821fix.html>

Cabling Tips

You can connect devices (such as hubs, servers, PCs, and workstations) to a UFC. Remember these tips when connecting cables:

- Avoid stretching or bending the cables excessively.
- Avoid routing the cables near potential sources of electromagnetic interference, such as motorized devices and fluorescent lights.
- 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 the UFC are supported so that the cable connectors are not excessively strained.
- For 100BASE-TX, make sure that you have selected a 100-ohm, UTP or FTP category 5 cable, and the correct cable type, crossover or straight-through.

Cabling

Step 1. Using the Cabling Chart provided by your network administrator as a guide, connect the cable between the UFC and the other device. For 100BASE-FX, connect the transmit (TX) connector on the UFC to the receive (RX) connector on the device end. Likewise, connect the UFC Rx connector to the device Tx connector.

Step 2. Label each end of the cable so that it will be easy to find the device if you have to troubleshoot a network problem. You should also put the information on the “cable destination” area of the Service Information Card. For the 8271 Nways Ethernet LAN Switch, the card is in the document tray on the lower left corner of the front of the machine.

Your cable label should include the following information:

- The room location of the other device
- A unique cable identification number
- The MAC address of the connected device
- The number of the port to which the cable is attached

Step 3. Continue with the instructions under “Testing the UFC” on page 5.

Testing the UFC

This section provides instructions for verifying the operation of the UFC.

Step 1. Power ON the base machine so that diagnostics start.

Step 2. Verify that the switch diagnostics have been completed successfully. In the 8271, this is indicated when the unlabeled Fault LED on the 8271 stops flashing and the green OK LED is on. Diagnostics can take up to 4 minutes to complete.

Step 3. Verify that the unlabeled Testing/Fault LED on the UFC is off. See Figure 1 on page 2 for the location of the LED. If this LED is off, continue with “Configuring the UFC.”

If the unlabeled Testing/Fault LED is on, check for the following problems:

- Incorrect microcode level. Follow instructions under “Updating the Microcode” on page 3 to verify that you have the correct microcode level.
- UFC seating. Power OFF the base machine, verify that the UFC has been correctly seated in the slot, and power ON the base machine.

If the unlabeled Testing/Fault LED remains on again, the UFC is defective. Refer to the *827x Universal Feature Cards Notices and Warranties* booklet shipped with this manual. In the United States, call 1-800-426-7299 for IBM assistance. In Canada, call 1-800-564-3344.

Configuring the UFC

The 100BASE-TX and the 100BASE-FX port are configured in the same manner as any other Ethernet port. The port will appear as an additional port on any configuration panel where ports are listed. It will be identified as a Port Type 100BASE-TX or 100BASE-FX and the port number will begin where the numbers of the base machine stop.

For example, if the base machine has eight ports, the UFC will appear as port 9 on the various port configuration panels.

Follow the instructions contained in the base machine publication for configuring the UFC. Remember that the 100BASE-TX and 100BASE-FX ports cannot be included in an EtherPipe or monitored by the EtherProbe port.

Troubleshooting the 100BASE-TX and the 100BASE-FX UFCs

Troubleshoot this UFC port like any other Ethernet port. Follow the instructions contained in the base machine publication to troubleshoot the UFC. However, here are some quick checks to make before proceeding:

- If you are installing the UFC and the LEDs do not come on when the base machine is powered on, verify that the UFC is seated.
- If the UFC Link/FDX LED does not come on, after installing the cable between the port and the other device:
 - For 100BASE-TX, make sure that you have chosen correctly between crossover and straight-through cables.
 - For 100BASE-FX, make that sure you have connected UFC Tx to device Rx an UFC Rx to device Tx.
 - Verify that the level of microcode is 9.1 or higher.

Support from the Web

For additional information about switch problems and fixes, as well as information about a variety of IBM Networking products, do the following:

1. Go to <http://www.raleigh.ibm.com>.
2. Select **Customer and remarketer support**.
3. Select **IBM Networking web resources, reports and forums**.
4. Select **Network Environment Support**.
5. Choose one of the options presented.

Operating Environment

Table 2. Operating Environment and Physical Dimensions

Temperature	10° to 40° C (50° to 104° F)
Relative Humidity	8% to 80%
Maximum Wet-Bulb Temperature	27° C (81° F)
Calorific Value	4 kcal/hr (15 BTU/hr)
Electrical Power	4.5 watts
Width	170 mm (6.7 in.)
Depth	214 mm (8.4 in.)
Height	25 mm (1 in.)
Weight	0.3 kg (.6 lb)

Replacement Parts

The replacement part numbers are 55H7114 for the 100BASE-TX UFC and 55H7115 for the 100BASE-FX UFC.

Tell Us What You Think!

**100BASE-TX & 100BASE-FX Universal Feature Cards
Planning and Installation Guide
Publication No. GA27-4096-01**

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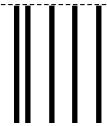
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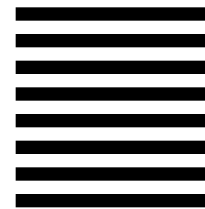
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