

Note

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1st 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 Model 108 Planning and Installation Guide*, Form Number G224-4425.

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Universal Feature Slot and Cards

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. Place this publication in that binder.

The 10BASE-T and 10BASE-FL UFCs

These UFCs provide additional, 10-Mbps Ethernet ports for the 8271 Nways Ethernet LAN Switch, increasing the maximum number of ports by 3 or 4. You can configure these UFC ports identically to fixed Ethernet ports. You can configure each or all of these ports (in combination with any of the fixed ports, or not) for use in multi-link EtherPipe connections and configure them to be included in virtual switches. These ports support address filters, BootP/TFTP, Telnet, and SNMP sessions and can be monitored by the EtherProbe port.

The 4-Port 10BASE-T UFC provides four, 10BASE-T MDI-X ports with RJ-45 connectors. Any of these UFC ports can be configured similarly to any of the fixed 10BASE-T ports to provide either shared (half-duplex), 10-Mbps Ethernet connections or dedicated (full-duplex), 20-Mbps connections. When cabling to the 10BASE-T UFC, follow the guidelines provided in the base machine documentation in the section entitled "Cables and Distances between Devices". There are three LEDs for each port to indicate port operational status. One LED indicates UFC operational status.

The 3-Port 10BASE-FL UFC provides three, 10BASE-FL multimode fiber connections via ST** connectors. You can configure these UFC ports similarly to the fixed 10BASE-T ports to provide either shared (half-duplex), 10-Mbps Ethernet connections or dedicated (full-duplex), 20-Mbps connections at distances up to 2 kilometers (1.2 miles). Connect a port on the UFC to a port on a compatible Ethernet repeater or hub (such as the IBM 8224 Ethernet Stackable Hub or the IBM 8250 Multiprotocol Intelligent Hub or the IBM 8260 Nways Multiprotocol Switching Hub) to establish shared connections. Connect these ports directly to a compatible Ethernet adapter to establish dedicated connections. There are three LEDs for each port to indicate port operational status. One LED indicates the overall UFC operational status.

Package Contents

Along with this manual, your UFC package should contain:

- One Universal Feature Card
- One MIB diskette
- One Safety Manual
- One Notices and Warranties booklet

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

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 left	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 the link is good.
Testing/Fault (unlabeled)	Bottom left	Amber	The internal tests of the UFC are running. If this LED stays on after the base machine has completed diagnostics, the UFC might be defective.

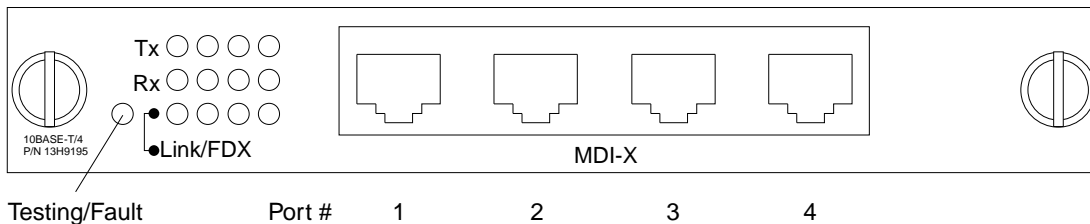


Figure 1. 4-Port 10BASE-T UFC LEDs and Connectors

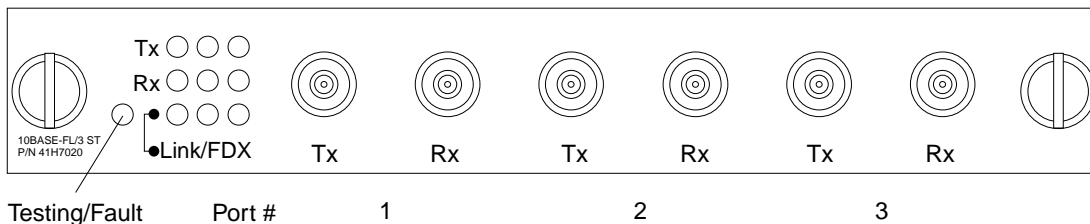


Figure 2. 3-Port 10BASE-FL UFC LEDs and Connectors

Note: UFC LEDs are not active while the Reset button is pressed.

Planning for Installation

Use the planning procedures in the base machine publication when planning to install either UFC. Be aware that the ports on the 10BASE-T UFC are Media Dependent Interface Crossed (MDI-X) ports, when you are choosing between straight-through and crossover cables. Use crossover cables when connecting like ports, Media Dependent Interface (MDI) to MDI or MDI-X to MDI-X. Use straight-through cables to connect unlike ports, MDI to MDI-X.

Multimode optical fiber cable is available in 62.5/125-, 50/125-, and 100/140-micron fiber types. For fiber cabling to the 10BASE-FL UFC, 62.5/125-micron, multimode optical fiber cable is recommended. All optical fiber cable should meet the international standard (ISO/IEC 11801) or the North American cabling standard (EIA/TIA 568A).

For optical fiber, the recommended maximum cable length is 2 kilometers (1.2 miles).

For the 10BASE-FL UFC, the optical fiber cable must have ST-type connectors.

Installing a Universal Feature Card

Follow these steps to install a UFC:

- Step 1** Power OFF the base machine by unplugging the power cord.
- 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 you ever remove the UFC.
- 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.

When the card is fully seated, the UFC faceplate will be flush with the front of the base machine.
- Step 4** Secure the card with the two attached thumbscrews.
- Step 5** Continue with "Updating the Microcode" on page 4.

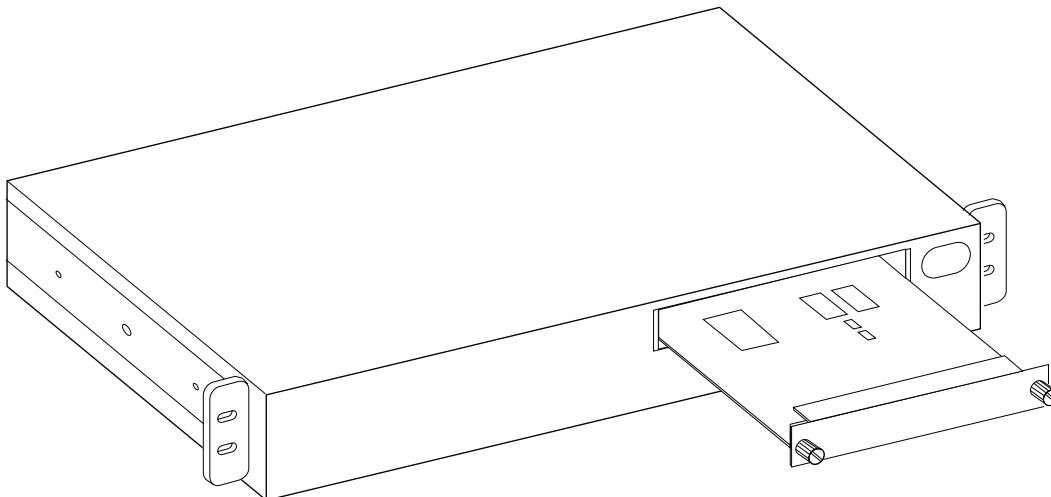


Figure 3. Installing a UFC

Updating the Microcode

You might need to update your microcode to support these UFCs before you configure the UFC ports. 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.

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.
- Route 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 10BASE-T, make sure that you have selected 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 cables between the UFC and other devices. For 10BASE-FL, 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 connected devices if you have to troubleshoot a network problem. You should also put the information on the Cable Destination area of the Service Information Card.
- Your cable label should include the following information:
- The room location of the connected device
 - A unique cable identification number
 - The MAC address of the connected device
 - The number of the port on the connected device to which the cable is attached
- Step 3** Continue with “Testing the UFC.”

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 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 turns 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 it is off, continue with “Configuring the UFC” on page 6.

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

- Incorrect microcode level. Follow the instructions under “Updating the Microcode” on page 4 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.

Configuring the UFC

Note: The expansion ports on the UFCs are numbered from left to right.

Configure the UFC ports using the procedure provided for the fixed ports of the base machine. They will appear as additional ports on any configuration panel where ports are listed. They will be identified as Port Type 10BASE-T or 10BASE-FL, and the port numbers will begin where the numbers of the base machine stop. For example, if the base machine has eight ports, the first port to the left on the UFC will appear as port 9 on the port configuration panels. Follow the instructions in the base machine publication for configuring the UFC.

Troubleshooting the UFC

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

- If UFC 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 10BASE-T, make sure that you have chosen correctly between crossover and straight-through cables.
 - For 10BASE-FL, make sure that you have connected a UFC Tx port to a device Rx port and a UFC Rx port to a device Tx port.
 - 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.

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 (0.6 lb)

Replacement Part Numbers

The replacement parts number are 55H7117 for the 3-Port 10BASE-FL UFC and 55H7116 for the 4-Port 10BASE-T UFC.

Tell Us What You Think!

**4-Port 10BASE-T & 3-Port 10BASE-FL UFCs
Planning and Installation Guide
Publication No. GA27-4120-00**

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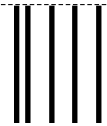
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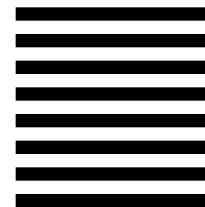
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