Fully configurable Token-Ring LAN switch at a competitive cost

IBM 8270 Nways LAN Switch Family

New model

A new member has been added to the IBM 8270 Nways® LAN Switch family of Token-Ring LAN switches. The new Model 600 joins the Model 800, providing a smaller, entry configuration (six slots). Both models allow flexible configuration with rich functionality provided by the common set of Universal Feature Cards they share. Similar to the Model 800, a typical network would benefit from the Model 600 by having each of its high-volume servers placed on dedicated full-duplex segments and having client workstations placed on shared segments using standard Token-Ring concentrators such as the IBM 8239 Token-Ring Hub.

New features

Two new UFCs extend MSS forwarding and routing services to the 8270 Nways LAN Switch Family. Both the MSS Client

and MSS Domain Client Universal Feature Cards (UFCs) provide forwarding and routing services. The MSS Client also has an integrated ATM port and provides ATM-to-LAN port bridging. These client-function products complete the MSS client/server family and allow the MSS Server products to perform their job in the network at maximum efficiency. Along with virtual LAN (VLAN) support by protocol, OSI Layer 2 and 3 forwarding of IP, IPX, AppleTalk and Banyan VINES protocols are provided.

Cost-effective Token-Ring switching

The IBM 8270 Nways Token-Ring LAN Switch provides a cost-effective solution to Token-Ring LAN performance requirements. With a minimum of disruption to existing networks, you can significantly address LAN performance.

A powerful LAN switch

With the 8270 you can build large switched networks with high-speed uplinks. A redundant power supply is available to help ensure continuous operation.

You can configure the versatile, modular 8270 LAN switch to:

- Add from 4 to 30 ports to your network configuration, more ports per switch than any other model.

- Install uplink UFCs to connect native protocols to high-speed links like high-speed Token Ring, ATM or the IBM 8260 Nways Multiprotocol Switching Hub.

IBM 8270 Nways Token-Ring Switch Model 600

IBM 8270 Nways Token-Ring Switch Model 800

Available UFCs include:

- 4-Port Token-Ring Enhanced UTP/STP
- 2-Port Token-Ring Enhanced Fiber
- 1-Port ATM Token-Ring II MMF
- MMS Client MMF
- MSS Client SMF
- MSS Domain Client

Chassis-based for flexibility

Universal Feature Card slots allow you to build a wide variety of switched network configurations using the broad set of optional feature cards that are shared between both models. This set of features provides copper and fiber Token-Ring ports, high-speed uplinks and Multiprotocol Switched Services (MSS) Client support. This expands the capabilities of the 8270 with a sophisticated set of VLAN, filtering and Layer 3 switching functions. Unrestricted by a fixed-port configuration, the UFCs can be used in each of the slots of the IBM 8270 to construct a wide variety of switched networks.

High-speed forwarding

When configured with the appropriate number of Token-Ring Universal Feature Cards, the 8270 provides high-speed forwarding of Token-Ring frames among shared or dedicated Token-Ring LAN segments. Similar in function to a multiport bridge, the 8270 forwards Token-Ring frames from one port to another, based on Token-Ring MAC addresses. The 8270 creates multiple, parallel paths among the connected Token-Ring LAN segments and devices.

Supports full-duplex communication

The 8270 supports full-duplex communication with LAN stations equipped with full-duplex Token-Ring adapters. Full-duplex Token-Ring connections can provide up to twice the bandwidth (up to 32 Mbps) of standard half-duplex connections.

1. 2210 Router
2. 8230 Controlled Access Unit
3. 8229 Bridge
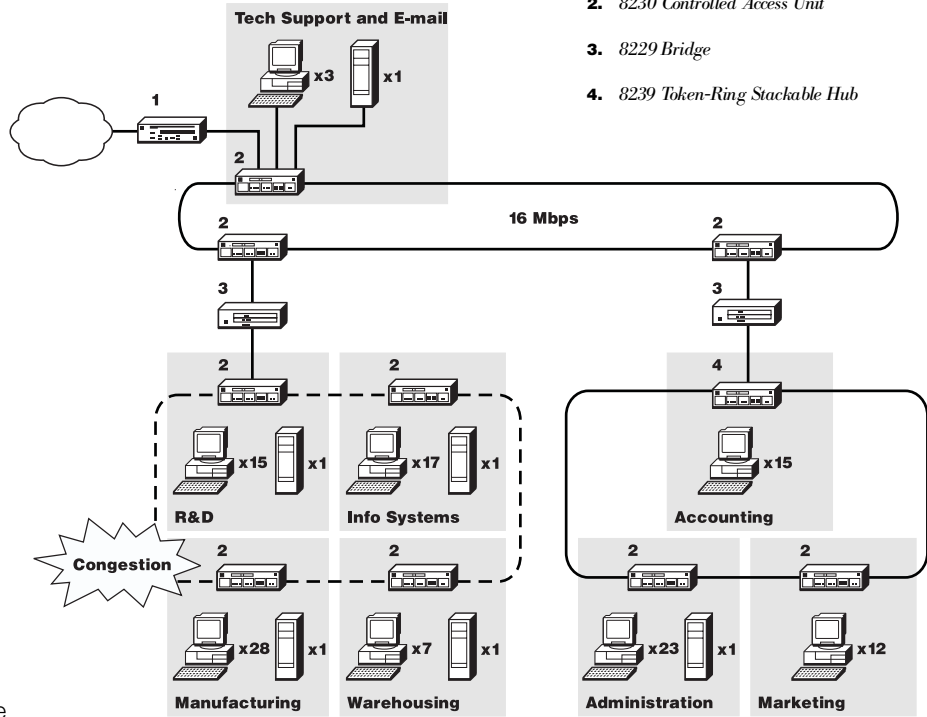4. 8239 Token-Ring Stackable Hub

Figure 1. A typical Token-Ring LAN experiencing congestion

1. 2210 Router
2. 8230 Controlled Access Unit
3. 8229 Bridge
4. 8239 Token-Ring Stackable Hub
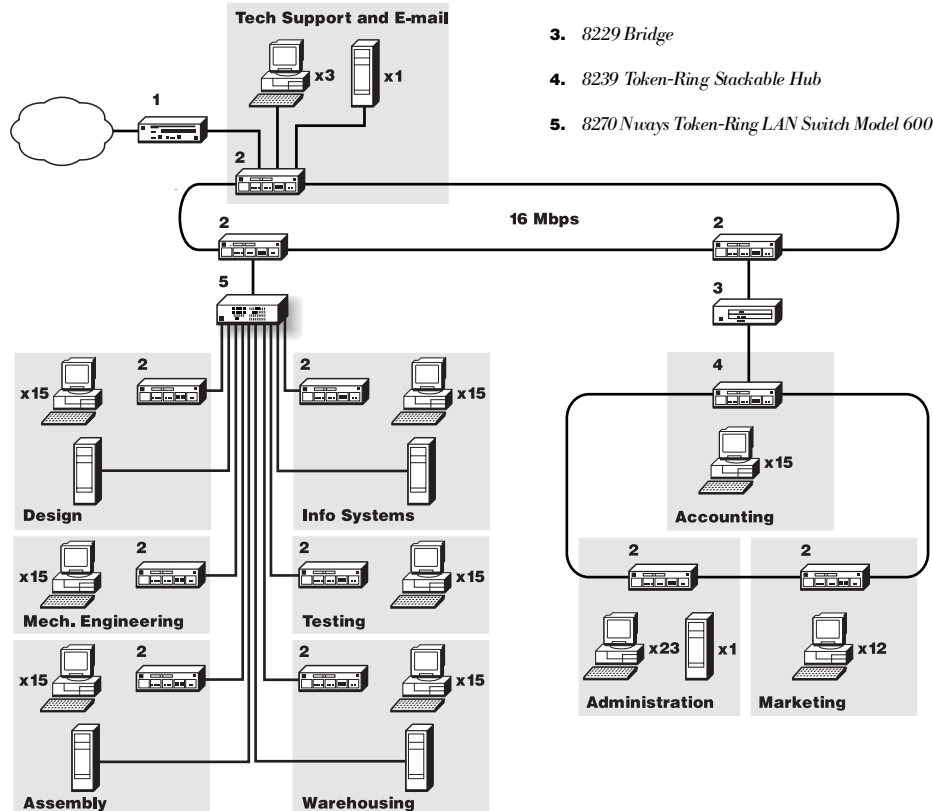5. 8270 Nways Token-Ring LAN Switch Model 600

Figure 2. A Token-Ring switch relieving that congestion

Added capacity and flexibility

With the 8270 you get added capacity and flexibility at a low cost per port.

The LAN shown in Figure 1 has provided excellent service in this data environment. But growth and new graphics applications are causing performance problems on this traditional, shared-media, 16-Mbps LAN.

Combining switching, full-duplex-attached servers and micro-segmented, shared-media LANs (Figure 2) gives the following advantages:

• No change to installed adapters

• No change to house wiring

• No change to application software

• Fewer users per segment

• More bandwidth per user

• Reduction in the number of bridges

• Reduced complexity

• Reduced cost

8270 Nways LAN Switch Family Model 800

Backbones remain overburdened by demands of e-mail, busy servers and Internet traffic (see Figure 3). Until now all you could do was install a faster, shared-media LAN like FDDI.

The 8270 Model 800 can act as a powerful workgroup switch or replace the entire backbone with a single switch (see Figure 4). Use TokenPipes to double or quadruple the bandwidth if you need it. TokenPipe allows you to connect up to four parallel, 32-Mbps paths between any two Token-Ring switches, providing as much capacity between switches as you need. This solution means:

• No change to application software

• Elimination or reduction of bridges

• Elimination of all routers except those on the periphery

• Scalable bandwidth between switches using TokenPipes
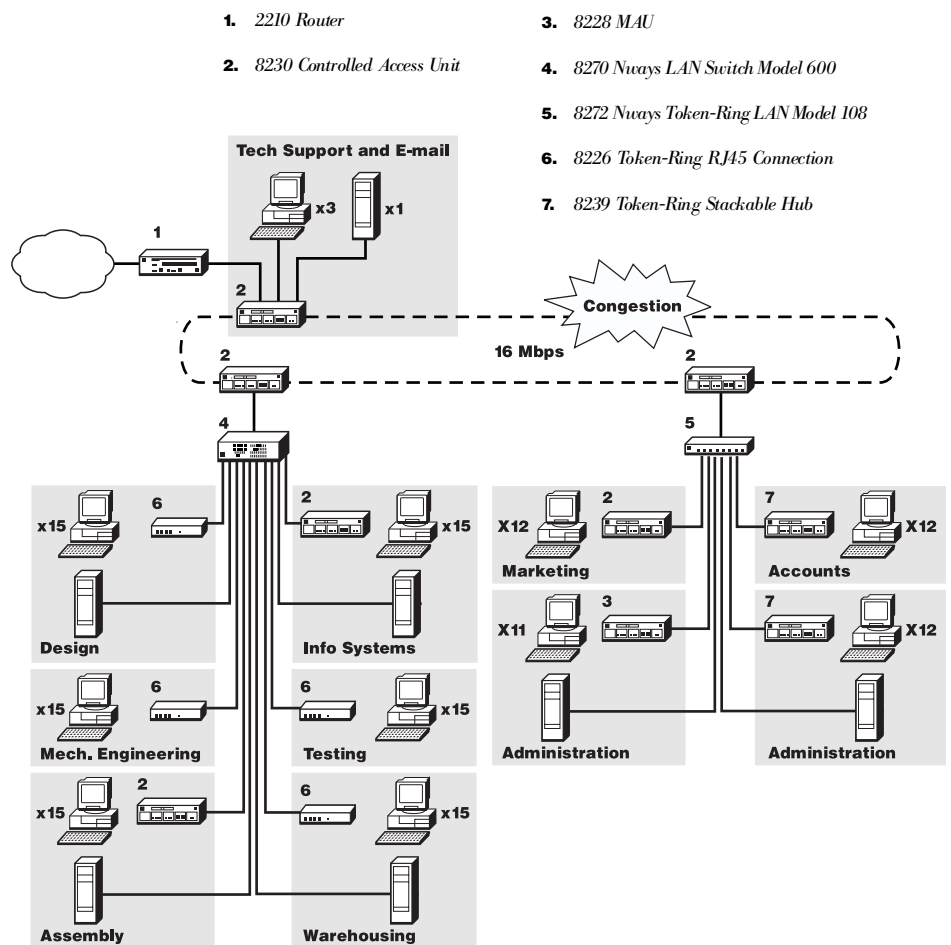
• Simplified network management

1. *2210 Router*

2. *8230 Controlled Access Unit*

3. *8228 MAU*

4. *8270 Nways LAN Switch Model 600*

5. *8272 Nways Token-Ring LAN Model 108*

6. *8226 Token-Ring RJ45 Connection*

7. *8239 Token-Ring Stackable Hub*

Figure 3. Backbone congestion

1. *2210 Router*

2. *8230 Controlled Access Unit*

3. *8228 MAU*

4. *8270 Nways Token-Ring LAN Model 600*

5. *8272 Nways Token-Ring LAN Model 108*

6. *8226 Token-Ring RJ45 Connection*

7. *8239 Token-Ring Stackable Hub*

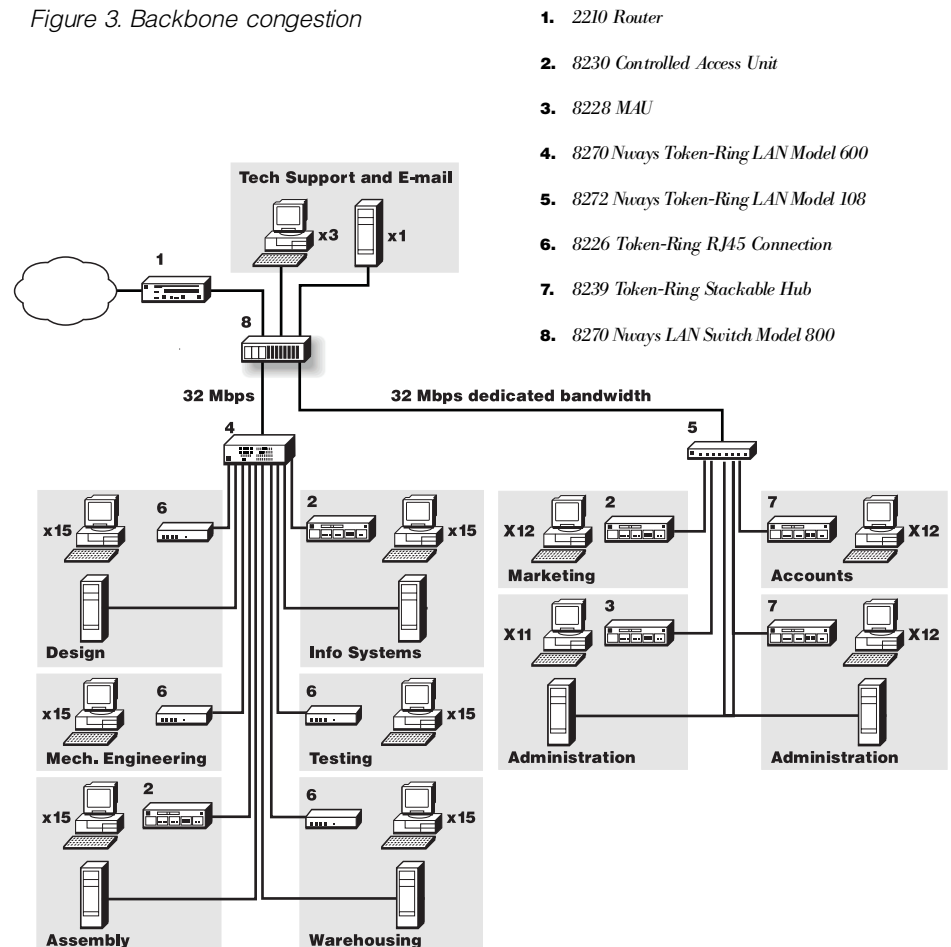8. *8270 Nways LAN Switch Model 800*

Figure 4. The 8270 Model 800 relieves backbone congestion

Network and device management

A full console interface, accessible using either a Telnet interface or the serial port (VT-100 or VT-100 emulator) on the front panel, can be used to configure and monitor the IBM 8270. Alternatively, the IBM 8270 contains a management agent that allows you to monitor and control its operation from SNMP applications. IBM's suite of network management applications, such as the *IBM Nways Workgroup Manager for Windows NT* and the *IBM Nways Manager for AIX*, allow you to manage your IBM 8270 using a rich set of graphical interfaces from a central location.

Further, when and if new functions or problem fixes become available, the IBM 8270 can be easily upgraded with new operational code. These software updates will be made available via the World Wide Web, allowing you to conveniently upgrade the operation of your IBM 8270.

With the IBM 8270's TokenProbe support, you can designate one of the Token-Ring ports to mirror the traffic on another Token-Ring port. This allows you to tune or troubleshoot any of the Token-Ring ports on your switch using an external protocol analyzer. The IBM 8270 SNMP agent also includes remote monitoring (RMON) support that allows you to monitor network conditions on all LAN segments attached to your 8270 simultaneously and to report this information to an RMON application using industry-standard protocols.

What you get

A minimum IBM 8270 Model 600 configuration consists of an IBM 8270 Model 600 and at least one Token-Ring Universal Feature Card, each ordered separately. When you order an IBM 8270 Model 600, you get:

- IBM 8270 Model 600 switch (which includes an 8270-600 processor and power supply)
- Rack mounting brackets
- Cable management bracket
- Installation Guide and Service Information Card
- Safety Manual
- Publications CD-ROM (which includes softcopy of the *IBM 8270 Planning, Configuration, and Operation Guide*)
- Power cord (US and Canada only)

A minimum IBM 8270 Model 800 configuration consists of the following components, each of which must be ordered separately:

- An IBM 8270 Model 800 Chassis kit
- An IBM 8270 Model 800 Processor Card
- At least one Token-Ring Universal Feature Card

When you order an IBM 8270 Model 800 Chassis kit, you get:

- IBM 8270 Model 800 chassis (including an 8270-800 power supply)
- Rack mounting brackets
- Cable management bracket
- Installation Guide and Service Information Card
- Safety Manual
- Power cord

When you order an IBM 8270 Model 800 Processor Card, you get:

- An IBM 8270 Model 800 Processor Card
- Publications CD-ROM (which includes softcopy of the *IBM 8270 Planning, Configuration, and Operation Guide*)

For 8270 Model 800 configurations, you can also order an optional redundant power supply.

Cables for each of the ports on the 8270 are required but are not included with the switch. When operating as a Token-Ring switch the 8270 uses the following types of cabling:

- Category 3, 4 or 5, 100-ohm, UTP cables with RJ-45 connectors wired to support Token Ring
- 150-ohm, STP cables with shielded RJ-45 connectors wired to support Token Ring
- Any current Token-Ring lobe cabling support for all types of connectors
- EIA 232-C cable with a DB-9 connector for connection to the management port
- Multimode or single-mode optical fiber with SC or ST connectors for fiber ATM or Token-Ring ports

Model Comparison

Though functionally comparable, the differences between the IBM 8270 Model 600 and the current Model 800 are summarized in the following table:

Except for considerations pertaining to their number of feature slots and redundancy characteristics, the IBM 8270 Model 600 is suitable for use in the same environments as the Model 800. However, with different redundancy characteristics, the 8270 Model 600 may be better placed closer to the edge rather than the center of your network.

Model	Feature Slots	Redundant Characteristics	Processor
600	6	N/A	Included (Built-In)
800	8	Redundant Power Supply Option; Redundant Fans Included	Separately Ordered

IBM 8270 Nways LAN Switch Family at a glance

Part numbers	85H6584: IBM 8270 Nways LAN Switch Model 800 25L4970: IBM 8270 Nways LAN Switch Model 600 72H4650: Token-Ring Processor Card (for Model 800 only) 72H4648: Redundant Power Supply (optional for Model 800)
LAN ports	• Port number and type depend on which UFCs are installed and on the 8270 model. • Support for 1700 active MAC addresses per port and 10 000 per 8272.
UFC slots	Model 800: 8 slots Model 600: 6 slots
Standard compliance	Supports IEEE 802.5 network components
Full-duplex operation	• Provides up to 32 Mbps, twice the bandwidth of standard half-duplex connections • Provides for simultaneous, two-way transmission between the switch and a LAN station • Improves server throughput by doubling available bandwidth when used on a dedicated LAN segment
Hardware requirements	Requires at least one Token-Ring Universal Feature Card
Configuration management	• Console function accessible via Telnet or VT-100 (or VT-100 emulator) connected to serial port • SNMP management for network management platforms capable of accessing SNMP (MIB-II compliant) management agents, such as Nways Workgroup Manager for Windows NT and Nways Manager for AIX®.
Source-routing technologies	Ease of use with source-route switching Economy with source-route bridging—redundant paths without external hardware
Interconnectivity	TokenPipe support permits greater LAN segmentation by allowing you to interconnect multiple IBM Nways Token-Ring LAN switches.
Ease of use	Automatic sensing and configuring of connection types
Installation	Can be mounted in a standard 19-inch rack or on a flat surface
Enhanced management tools	Address filters, virtual switch support, and BootP/TFTP TokenProbe port
Physical specifications	*8270 Model 800 Chassis* Width: 440 mm (17.3 in.) Depth: 356 mm (14.0 in.) Height: 222 mm (8.7 in.) Weight: 23 kg (50 lb.) fully loaded Weight: 17 kg (37 lb.) empty

Physical specifications continued	*8270 Model 600*
	Width: 440 mm (17.3 in.)
	Depth: 305 mm (12.0 in.)
	Height: 133 mm (5.2 in.)
	Weight: 10 kg (22 lb.) fully loaded
	Weight: 7 kg (16 lb.) empty
	8270-800 Token-Ring Processor Card
	Width: 170 mm (6.7 in.)
	Depth: 210 mm (8.4 in.)
	Height: 51 mm (2.0 in.)
	Weight: 0.5 kg (1.2 lb.)
	8270-800 Power Supply (optional)
	Width: 76 mm (3.0 in.)
	Depth: 350 mm (13.8 in.)
	Height: 170 mm (6.7 in.)
	Weight: 2.7 kg (6 lb.)

IBM 8270 Nways LAN Switch Family at a glance

Operating environment	*Model 800*
	Temperature: 10° to 40°C (50° to 104°F)
	Relative humidity: 8% to 80%
	Wet bulb: 27°C (80.6°F)
	Electrical power: 0.6 kVA
	Leakage and starting current: 0.5 mA/40 A, 6 ms
	Capacity of exhaust: 2.3 m³/min. (82 ft³/min.)
	Sound pressure: 56 dB
	Model 600
	Temperature: 10° to 40°C (50° to 104°F)
	Relative humidity: 8% to 80%
	Wet bulb: 27°C (80.6°F)
	Electrical power: 0.15 KVA
	Leakage and starting current: 1.5 mA/40 A, 6 ms
	Capacity of exhaust: 1.3 m³/min. (46 ft³/min.)
	Sound pressure: 44 dB
Standards compliance	• 8270 Safety Standards: EN 60950, UL 1950, CSA 950
	• Electromagnetic Standards: FCC Class A (USA), VCCI Class A (Japan), ICES-003 Class A (Canada), EEC EMC (CE Mark), EN55022 Class B (CISPR-22B) or Class A (CISPR-22A) when configured with UFCs using unshielded cables, IEC 1000-3-2 (EN 61000-3-2/Confirmed Harmonics Guide Line JEIDA)
Publications	• *8270 Models 600 and 800 Planning, Configuration, and Operation*
	• *8270 Models 600 and 800 Installation and Service Guide*
	Softcopy of these publications are included on the *IBM 8270 Publications CD-ROM.* Copies of this CD-ROM may be obtained using order number SK2T-0434.
Warranty	1 year
Year 2000	The IBM 8270 Nways LAN Switch Family is Year 2000 Ready when used in accordance with its associated documentation and is capable of correctly processing, providing and receiving data within and between the 20th and 21st centuries, provided all other hardware, software, and/or firmware used with the product properly exchange accurate data with it.
ISO 9000	The IBM 8270 Nways LAN Switch Family was developed and is manufactured by IBM under a registered ISO 9000 quality management system.

8270 UFCs at a glance

4-Port Token-Ring Enhanced UTP/STP	Part number: 85H5092
	 Cabling:
	  UTP/STP via RJ-45 connectors
	  Supports Token-Ring STP cabling and category 3, 4 or 5 Token-Ring UTP cabling
	 Ports: 4 Token Ring, half-duplex (HDX) or full-duplex (FDX)
	 Data rate: 4- or 16-Mbps HDX or 32-Mbps FDX

2-Port Token-Ring Enhanced Fiber	Part number: 85H5087 Cabling: Multimode fiber via ST connectors Ports: 2 Token Ring, HDX or FDX Data rate: 4- or 16-Mbps HDX or 32-Mbps FDX
1-Port ATM Token-Ring II MMF*	Part number: 86H2762 Cabling: Multimode fiber via an SC connector Ports: 1 ATM (LANE) Data rate: 155 Mbps
MSS Client MMF*[1]	Part number: 85H4596 Cabling: Multimode fiber via SC connectors Ports: 1 ATM (LANE, CIP, NHRP) Data rate: 155 Mbps
MSS Client SMF*[1]	Part number: 85H4599 Cabling: Single-mode fiber via SC connectors Ports: 1 ATM (LANE, CIP, NHRP) Data rate: 155 Mbps
MSS Domain Client*	Part number: 85H9303 Cabling: N/A Ports: N/A Data rate: N/A

Physical specifications	All of the 8270 UFCs listed above have identical width and depth but vary in height and weight as indicated below.
	 Width: 70 mm (6.7 in.)
	 Depth: 214 mm (8.4 in.)
	 Height:
	  25 mm (1.0 in.)
	  50 mm (2.0 in.) MSS Client only
	 Weight:
	  0.4 kg (0.9 lb.)
	  0.5 kg (1 lb.) MSS Domain Client only
	  0.7 kg (1.5 lb.) MSS Client only

Publications	• *ATM Multimode Fiber Universal Feature Card Planning and Installation Guide*, GA27-4156 • *MSS Client Universal Feature Card Planning and Installation Guide*, GA27-4170 • *MSS Domain Client Universal Feature Card Planning and Installation Guide*, GA27-4171 • *2-Port Fiber and 4-Port UTP/STP Token-Ring Enhanced Universal Feature Cards Planning and Installation Guide*, GA27-4168

* Limitations: Maximum of two UFCs in this set may be installed in an IBM 8270. There may also be usage consideration associated with some of these combinations.

[1] The MSS Client (MMF and SMF) UFCs each occupy two slots in an 8270. All of the other UFCs occupy one slot each.

For more information

To find out more about the IBM 8270 Nways Token-Ring LAN Switch Family and other high-performance IBM communications and networking products, contact your IBM representative or call IBM Direct at 1 800-IBM-CALL (1 800 426-2255). You can access the IBM Networking Home Page at *www.networking.ibm.com.*

Copies of this and other related product specification sheets can be obtained from the IBM FAX Information Service by dialing 1 800 IBM-4-FAX (1 800 426-4329) in the U.S. or Canada or by dialing 415 855-4329 outside the U.S. and Canada and requesting the following document number:

6195: *IBM 8270 Nways LAN Switch Family Specification Sheet*

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