Fast transition to higher-speed technologies with minimal disruption and expense

IBM 8271 Nways Ethernet LAN Switch Models E12, E24, F12 and F24

Highlights

Support standards-compliant end-to-end policy and Class of Service for optimum performance

Include 12- and 24-port models for either 10BASE-T or 10/100BASE-T half-duplex or full-duplex operation

Provide auto-sensing 10/100BASE-T ports (Models F12 and F24 only)

Allow you to mix and match models in a stack of up to four units for flexible configuration

Offer 100BASE-T and 1000BASE-SX Gigabit Ethernet uplinks (all models)

Will offer ATM uplinks in an upcoming release



IBM 8271 Nways Ethernet LAN Switches provide the bandwidth required for today's application environment.

Move to switched, full-duplex Ethernet with the 8271

The IBM 8271 Nways® Ethernet LAN Switch Models E12, E24, F12 and F24 are the latest evolution of IBM's powerful family of Ethernet LAN switches. Since IBM introduced the first 8271s, more and more networks have moved from shared Ethernet segments starved for bandwidth to switched, full-duplex Ethernet that makes up to 200 Mbps of bandwidth available to the desktop. These new 8271 models take this evolution a step further. In addition to models that provide full-duplex, standards-compliant, switched 10BASE-T, the new F12 and F24 models provide auto-sensing 10/100BASE-T ports to meet the aggregate bandwidth demands of power users and servers. All the new models of the 8271 have been designed to make fast transitions to higher-speed technologies as new applications demand additional network bandwidth.

The new models can be assembled together in a stack of up to four units. You can provide switched 10BASE-T to desktops through the Models E12 and E24 and 10BASE-T or 100BASE-T for servers and power users through Models F12 and F24, all in the same stack. That means you pay only for the bandwidth you need.

All models can provide switched 1000BASE-SX, 100BASE-T or 100BASE-FX uplinks for attachment to the campus backbone. The 100BASE-T and 100BASE-FX modules are available in dual-port modules to provide both trunking and redundancy. In an upcoming release, 155-Mbps and 622-Mbps ATM uplinks will be available.

8271 units can be linked together into a stack, either by connecting the matrix ports of two units or by connecting the matrix port of one to three units to another unit that has a matrix module installed in its Expansion and Switch Matrix Module Slot. Each stack can have multiple uplink modules installed to provide more bandwidth to the backbone. The uplink modules are also installed in the Expansion and Switch Matrix Module Slot located on the back of the machine.

Investing in the future of your network

The 8271 allows you to meet the bandwidth demands of your existing applications and make sure that future demands don't force you into major infrastructure changes in your networking environment. All models of the 8271 support multiple 100BASE-T uplinks to a campus or enterprise backbone to meet the bandwidth demands of most installed applications.

Features	*Benefits*
Crossover ports	Allow use of straight-through cables for all connections. No special crossover cables are required.
Disconnect Unauthorized Device	Provides security by automatically disconnecting any unauthorized device on the LAN.
Port Mirroring/Roving Analysis	Allows you to connect a network analyzer to any unit in a stack to monitor any port or VLAN in the stack. This helps you manage congestion and carry out problem determination.
Excellent EMI/EMC characteristics	Approved for worldwide use in offices—wherever you need a LAN.
AUI port (Models E12 and E24 only)	Allows for connection to 10BASE-2, 10BASE-5 and 10BASE-F Ethernets.
Front-panel LEDs	Provide box-level and port-level information for operational monitoring and troubleshooting.
802.1 P+Q support	VLAN support and prioritization support
Stacking	Building high-density, single-managed units
Port trunking	Aggregate multiple ports on a single logical connection creating increased bandwidth

The applications of the future are going to be increasingly bandwidth-intensive and demand real-time interactive voice and video throughout the network. The 8271 Models E12, E24, F12 and F24 support 1000BASE-SX Gigabit Ethernet uplinks and will support 155-Mbps and 622-Mbps ATM expansion modules in a future release. This powerful combination of bandwidth choices will allow you to provide maximum bandwidth to power users and servers and less, though adequate, bandwidth to users whose applications are not so bandwidth-intensive. Rather than discarding large parts of your existing infrastructure, with the 8271s you can evolve to higher-bandwidth solutions when and where you need them with minimal disruption and expense.

Real-time multimedia networking and Ethernet simplicity

The new 8271 models are among the first generation of Ethernet devices that can deliver real-time multimedia applications such as news services and videocasting while retaining the simplicity and reliability of Ethernet. The 8271s implement such advanced features as end-to-end global policy, network control and pervasive management to ensure smooth delivery of multimedia applications. They execute global policy with a combination of Ethernet standard Class of Service (IEEE 802.1p), IP Multicast and software application features for prioritization using transparent, non-proprietary multicast control. All 8271 models implement Ethernet standards-based Class of Service using eight levels of priority. In addition, the dual-queues function automatically enables a second port buffer to allow higher-priority traffic to bypass lower-priority traffic for faster forwarding within the switches.

The 8271 provides the latest standards-based implementation of Ethernet to preserve your investment in training and software, while providing the most satisfactory service to network users.

Management from all the right perspectives

The 8271 has been designed with management built-in from the conception of the design. After all, your network is critical to your organization, so network components that warn you of impending trouble help you to avoid failures and provide the most reliable possible service to your network users.

All models of the 8271 allow you to organize users, printers, servers and other resources into logical broadcast domains called virtual local area networks (VLANs). The 8271 supports up to 16 VLANs to help control traffic on your network. VLANs restrict communication to members of the same VLAN. 8271 VLANs have been implemented strictly according to IEEE 802.1 and 802.1Q to ensure compatibility with other Ethernet devices implementing VLANs.

The 8271 also supports SNMP management and groups 1 through 6 and 9 of RMON simultaneous instrumentation on every port to monitor, analyze and minimize network traffic. This enables you to manage your network from any SNMP- or RMON-based manager, including IBM LAN Network Manager. In addition, integrated Web-based management lets you manage your switches with any Web browser connected directly to a switch or over the network. 8271s let you manage the network virtually any way you want to look at it.

Big-box features in a small package

The 8271 has been designed to meet the stringent requirements of organizations that rely on their networks to run their businesses. The 8271 provides the following features to help ensure that you get the maximum value from your network:

- Auto-ranging power supplies to eliminate the need for multiple models for different countries
- Redundant and resilient links to ensure availability of critical resources
- Congestion control to help eliminate lost packets and reduce delay in the switch
- Uplink fiber trunking for 100BASE-FX to help eliminate bottlenecks and deliver bandwidth where you need it
- 1000BASE-SX Gigabit Ethernet uplinks for high-speed networking

IBM 8271 Nways Ethernet LAN Switches at a glance

Models	E12, E24, F12, F24
Total ports	• Model E12: 12 full-duplex, switched 10BASE-T, one 10/100BASE-TX • Model F12: 12 full-duplex, switched, auto-sensing 10/100BASE-T • Model E24: 24 full-duplex, switched 10BASE-T, one 10/100BASE-TX • Model F24: 24 full-duplex, switched, auto-sensing 10/100BASE-T • All Models: MDI and MDIX port for cascading; slot for uplink modules or matrix module
Physical Specifications	*All Models* Height: 76 mm (3 in.) Width: 483 mm (19 in.) Depth: 305 mm (12 in.) Weight: 4.4 kg (9.7 lb)
Power	*All Models* The internal power supply supports standard voltages throughout the world. The nominal input voltage and frequency ranges are 90 to 240 V ac and 50 to 60 Hz, respectively. All models require 3 A maximum. An advanced redundant power system (RPS) can be attached to the RPS socket to protect against failure of the internal power supply.
Operating environment	Temperature: 0° to 50° C (32° to 122° F) Relative humidity: 10 to 95%, non-condensing Maximum wet-bulb temperature: 27° C (84° F)
Noise level	56 dB
Operating clearances	Front: Adequate space for viewing LEDs and attaching cables Sides: 50.8 mm (2 in.) Rear: Adequate space for installing expansion modules and attaching cables
Standards	• *Ethernet* IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.1P Multicast filtering IEEE 802.1Q VLAN tagging IEEE 802.3x Flow control on full-duplex IEEE 802.1D Bridging (spanning tree) • *Management* RFC 1157 SNMP Protocol RFC 1212 MIB II RFC 1493 Bridge MIB RFC 1516 Repeater MIB RFC 1573 VLAN MIB RFC 1271 RMON MIB RFC 951 BOOTP • *Terminal Emulation* RFC 854 Telnet • *Administration* RFC 768 UDP RFC 791 IP RFC 792 ICMP RFC 792 TCP RFC 826 ARP RFC 783 TFTP

IBM 8271 Nways Ethernet LAN Switches at a glance (continued)

Standards (continued)	• *Safety Certifications* UL 1950 second edition EN60950: 1992/A3: 1995 plus ZB/ZC Deviations CSA 22.2 No. 950 TÜV GS Mark applied for • *Electromagnetic Compliance (Emissions)* EN55022 Class B as a stand-alone product (Category 5 ScTP only) EN55022 Class A as a stand-alone product (UTP cables) EN55022 Class A as a stack (Category 5 ScTP only) FCC Part 15 Class A as a stack, using shielded cables ICES-003C VCCI Class B JEIDA AS/NZS 3548 Class B CSA C108.8-M1983 EN 50082-1 (IEC801 parts 2–4) EN 61000-3, -2 EN 61000-4, -4 ENV50140 ENV50141 • *Environmental* EN60068 (IEC68)
Cabling supported	• For 10BASE-T operation: Category 3, 4 or 5 UTP or ScTP cable as specified in TIA/EIA/ANSI 568A or ISO IEC 11801. • For 100BASE-T operation: Category 5 UTP or ScTP as specified in TIA/EIA/ANSI 568A or ISO IEC 11801. • For operation on optical-fiber: 62.5/125 multimode optical-fiber cabling as specified in TIA/EIA/ANSI 568A or ISO IEC 11801.
Installation	Either tabletop- or rack-mounted

For more information

To find out more about the IBM 8271 Nways Ethernet LAN Switches 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 also obtain information from the IBM Networking Home Page at: *www.networking.ibm.com*

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