Build the network of the future today!

IBM 8285 Nways ATM Workgroup Switch

Highlights

- ***Greater throughput than Ethernet or Token-Ring networks***
- ***Bandwidth on demand for a new generation of applications such as desktop videoconferencing with guaranteed ATM Quality of Service (QoS)***
- ***Low cost of the 8285 and its equally low operating cost with copper wiring (including voice-grade wiring) for a quick and affordable option for desktop ATM***
- ***ATM switching that is not restricted to LAN backbones or high-speed servers***
- ***Imbedded ATM Forum LAN Emulation (LANE) servers***
- ***Base-unit connectivity for up to 12 users***
- ***Rich management features and sophisticated routing algorithms for easy integration into large, complex networks***
- ***Improved end-user productivity and a competitive edge for opening new business opportunities***

When the 8285 Nways™ ATM Workgroup Switch is combined with backbone ATM switches, such as the IBM 8260 Nways Multiprotocol Switching Hub, the cost of ownership is reduced through:

- Simplification of network design and planning
- Reduction of the number of different LAN technologies in the network
- Enablement of two true virtual LANs that are logically assigned to the workstations rather than to the physical port in the network

The 8285 also provides these other major benefits:

- Low-cost ATM workgroup switch
- Expansion to 48 connections at the ATM 25-Mbps interface, with multiple-feature, 155-Mbps ports
- High switching capacity using IBM's Switch-on-a-Chip switching matrix
- Full support of ATM QoS
- Full ATM Forum standards compliance
- Rich in IBM extensions for switch-to-switch interfaces, fully compatible with the 8260
- Integrated ATM Forum LANE servers
- Full set of network management and operations features
- Open for third-party development through the IBM ATMKit Development Program



IBM 8285 Nways ATM Workgroup Switch

Features	*Benefits*
ATM core-switching	• High switching capacity with a single-stage switching fabric at 4.2 Gbps, full-duplex • Support of all AAL types • Support of constant bit rate (CBR), variable bit rate (VBR), Unavailable bit rate (UBR) and available bit rate (ABR) • Use of field-programmable gate arrays (FPGAs) for field upgrades to the latest ATM Forum specifications • 30-ms latency, stable at any load • Input and output cell buffers in base model, and all ATM expansion modules for LAN bursty traffic support • Early packet discard for minimum frame retransmittal during traffic congestion • Flow-control and back-pressure mechanisms to avoid cell loss • Enabled for clock distribution • Up to 2000 bidirectional connections per port interface
Control point	• Concurrent UNI 3.0/3.1 signaling and conversion between 3.0 and 3.1 • ATM Forum Interim Inter Switch Protocol (IISP) and IBM-specific extensions in line with the PNNI framework • Support for switched virtual circuits, as well as point-to-multipoint connections • Up to 4000 bidirectional, concurrent connections (expandable through field memory upgrade) • Soft permanent virtual circuit (PVCs), where PVC values need to be defined at network entry and exit only • Auto-topology, dynamic routes calculation and parallel paths • Peer-groups hierarchy for complex and large network configurations • Link aggregation on any interface for increased reliability and bandwidth between ATM switches • Permanent virtual path tunneling for switched services over PVCs • Virtual-path (VP) assignment per QoS, for separation of traffic types on a single physical interface over different VPs with different QoS
Interfaces	• 25.6-Mbps interface on base model, or as a module in the expansion unit • 4-port transparent asynchronous transmitter receiver interface (TAXI) module, multimode fiber (MMF) • 2-port 155-Mbps Concentration ATM Flex Module (SMF, MMF, UTP/STP) • ATM generic carrier module for open development on the 8285 • Open for additions of lower ATM rates for WAN connections
LAN Emulation	• ATM Forum LAN Emulation Server/Broadcast and Unknown Server (LES/BUS) included in base model offering • Intelligent BUS implementation for reduction of multicast frames • Token-Ring and Ethernet LANE • Supports LANE Clients over UNI 3.0 and UNI 3.1 concurrently • Supports the 3 modes of LANE registration: fixed virtual path (VP) value, well-known address and LAN Emulation Client Server (LECS) ATM address through interim link management interface (ILMI) • Up to 128 concurrent LECs • Includes an LEC protocol stack for in-band management • Integrated ATM and LAN bridge module, as a feature in the expansion unit
ATM network management	• Includes an SNMP agent with support of ATM Forum MIB, plus IBM-specific enterprise extensions • SNMP communications over Classical IP or LANE protocols (or from local console port) • ATM network-monitoring of registered ATM stations • ATM statistics (link utilization, cell loss rate, unknown cells, number of ongoing or active sessions, session durations and clear causes) • Reports topology and connection updates for auto-topology display and connection-tracking • Works with the following graphical applications: IBM Nways Campus Manager ATM for AIX® IBM Nways Campus Manager ATM for HP OpenView IBM Nways Campus Manager for Windows®

Operations	• Out-of-band and in-band management • Easy-to-use, local console interface via an EIA 232 port (or remotely via a modem) • Telnet, TFTP and PING
	• SLIP protocol over the EIA 232 port • Configuration saved in nonvolatile RAM • Upload and download of the configuration file • In-band management via Classical IP or LANE or both • Supports traces on signaling, or topology services or both and upload of trace files • Multiple code levels for concurrent maintenance • Error log with upload of log fileIBM 8285 hardware units

8285 hardware units

The 8285 consists of a base unit and an optional, stackable expansion unit. The base unit provides twelve 25-Mbps ATM ports and one feature slot for a high-speed, 155-Mbps ATM link (single-mode or multimode fiber). The optional expansion unit allows you to use up to three of the following types of modules:

ATM 8260 media modules (25, 100 and 155 Mbps), ATM LAN Bridge modules and modules developed under the ATMKit Development Program

The 8285 base unit is great for customers who want to take advantage of ATM in a small configuration without needing to link to a backbone. The 8285 is fully autonomous and provides all the features and performance to handle multimedia traffic in voice, data or video formats at a competitive price. The 155-Mbps interface card allows you to link to a local server for higher bandwidth performance or (later) to an ATM backbone. The 8285 is also a good entry-level product for customers who want to explore the possibilities of ATM.

The 8285 inherits the powerful and well-proven architecture of the 8260 ATM hub, such as the Software Control Point Switch-on-a-Chip traffic management technologies common to the entire IBM ATM switch family.

IBM 8285 specifications

Physical specifications	• Base unit: Width: 440 mm (17.3 in.) Depth: 508 mm (20 in.) Height: 133.4 mm (5.3 in.) Weight: 12.8 kg (28.2lb) • Base unit motherboard: Motorola 68040 at 25 MHz 8 MB of DRAM, expandable to 16 MB 4 MB of flash memory • Expansion unit: Width: 440 mm (17.3 in.) Depth: 508 mm (20 in.) Height: 133.4 mm (5.3 in.) Weight[1]: 12.8 kg (28 lb) [1]Weight is for an empty expansion unit.
Operating environment	• Temperature: 10° to 40°C (50° to 104°F) • Relative humidity: 8% to 80% (non-condensing) • Maximum wet-bulb temperature: 27°C (80.6°F) • Calorific value: 44 Kcal/hr • Electrical power: 0.54 KVA • Capacity of exhaust: 0.74 m^3/min • Noise level: 43 dB • Leakage and starting current: 2.7 mA and 40 A, for 6 ms • Airflow requirements: 100 mm (4 in.) minimum rear, 300 mm (12 in.) minimum front
Radio frequency interference and safety compliance	• FCC Class A • VDE Class B • VCCI Class 1 • CISPR22 Class B • CE Mark CSA NRTL/C • CB Certificate

Integrated LANE servers

The IBM 8285 comes with an integrated ATM Forum LANE LES and BUS for Token-Ring and Ethernet operations. Multiple instances of the LES and BUS enable the creation of virtual LANs. The 8285 uses an intelligent BUS that reduces the amount of multicast frames, which relieves the ATM workstations and LAN ATM switches and routers of unnecessary traffic.

The 8285 can dynamically pass the LECSs addresses to ATM stations. Three modes of LANE registration are supported:

- Fixed VP value
- Well-known address
- LECS ATM address gotton through ILMI

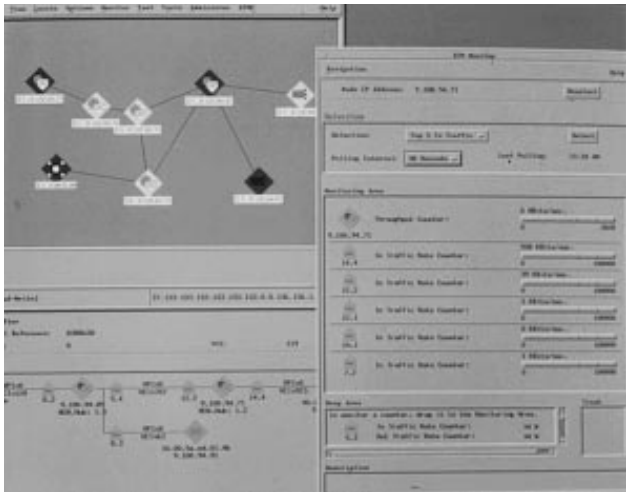
This ensures that it covers the widest range of ATM adapter implementations.

ATM network management

An SNMP agent in the 8285 implements standard ATM MIBs and enterprises-specific extensions for full auto-topology display and connection-tracking from major network management stations such as NetView® for AIX or HP OpenView, or from low-cost management stations such as NetView for Windows. ATM traffic can be monitored and displayed in various formats. ILMI information about connected ATM stations is reported and displayed.

IBM 8285 Orderables

Part number	Feature	Model	Description
47H2287		00B	Base unit
47H2290	5500		155-Mbps I/O Card MMF
51H3860	5501		155-Mbps I/O Card SMF
80G3150	3150		Universal Code Download Kit
47H2421	5502		Expansion unit
ATM modules orderable for expansion unit			
51H3828	5012	00B, 00P	12-Port 25-Mbps Concentration Module
10J2184	8510	00B, 00P	1-Port 155-Mbps MMF I/O Card
58G5845	5004	00B, 00P	4-Port 100-Mbps Fiber MIC Concentration Module
80G3310	5104	00B, 00P	4-Port 100-Mbps SC Fiber Concentration Module
58G9663	5002	00B, 00P	2-Port 155-Mbps ATM Flex Concentration Module
58G9667	8800	00B, 00P	1-Port Fiber Multimode ATM Flex I/O Card
58G9855	8801	00B, 00P	1-Port Fiber Single-mode ATM Flex I/O Card
58G9856	8802	00B, 00P	1-Port UTP/STP I/O Card
58G9858	5204	00B, 00P	4-Port 8281 ATM LAN Bridge Module
58G9860	5102	00B, 00P	UTOPIA ATM Carrier 1-Slot Module
47H2402	5202	00B, 00P	UTOPIA ATM Carrier 2-Slot Module
51H4474	5003	00B, 00P	1-Slot, 3-Port 155-Mbps ATM Module
37H7725	5008	00B, 00P	Video Distribution Module
51H5232	5099	00B, 00P	ATM Firmware Upgrade
51H4328	5302	00B, 00P	ATM WAN Module
10J2119	8501	00B, 00P	1-Port E3 I/O Card (Italy)
10J2120	8501	00B, 00P	1-Port E3 1/O Card (Germany)
10J2122	8501	00B, 00P	1-Port E3 1/O Card (Netherlands)
10J2118	8501	00B, 00P	1-Port E3 1/O Card (Australia)
10J2194	8501	00B, 00P	1-Port E3 1/O Card (Israel)
10J2121	8501	00B, 00P	1-Port E3 1/O Card (Belgium)
10J2091	5602	00B, 00P	ATM WAN Carrier Module
10J2317	8507	00B, 00P	4-Port E1/T1/J1 I/O Cards (no homologation)
10J2138	8507	00B, 00P	4-Port E1/T1/J1 I/O Cards (CE Mark countries)
10J2146	8507	00B, 00P	4-Port E1/T1/J1 I/O Cards (Switzerland)
10J2159	8507	00B, 00P	4-Port E1/T1/J1 I/O Cards (U.K.)
10J2186	8507	00B, 00P	4-Port E1/T1/J1 I/O Cards (Italy)
10J2458	5509	00B, 00P	ATM Control Point Version 3 with PNNI-1





ATM 25.6-Mbps Module

Working configurations

ATM remote feeder

When used as a feeder node to remote locations, the 8285 is an excellent ATM entry product. The high-speed, 155-Mbps ATM port (whether with single-mode or multimode fiber) enables the attachment to main sites via ATM bearer services or privately owned fiber links. The 8285 can also be used by service providers as terminal equipment for delivering ATM transport services, and in the residential market with applications such as video on demand.

Client/server workgroup

The 8285 can be operated in a client/server configuration with:

- Client stations connected to the 25-Mbps ports
- The server connected to the 155-Mbps interface on the base unit

The expansion unit allows larger configurations with any mix of 25-, 100- and 155-Mbps interfaces.

This configuration also supports the addition of an integrated ATM LAN Bridge Module.

Floor workgroup switch

In larger networks the 8285 functions as part of a larger ATM backbone to bring ATM to the desktop on every floor in a building. Multiple, 155-Mbps uplinks can be used to link the 8285 to the main backbone for added reliability and increased bandwidth.

Servers on the floor requiring high-speed interfaces can also be used. The 8285 provides local switching between workstations and the servers.

Meshed networks with backbone ATM switches The 8285 can also be used in any combination with other 8285s, 8260s or ATM switches from other vendors. When the network is composed of both 8260s and 8285s, the switches interoperate to dynamically discover active nodes, compute the best route and bypass failed nodes.

Workgroup solutions

The 8285 also operates as part of IBM's latest offering, the Nways ATM Workgroup Solutions, where the 8285 is coupled with our ISA or PCI 25-Mbps ATM adapters at a suggested per-user cost of $495. In addition, ATM Forum-compliant Token-Ring and Ethernet LANE and Classical IP are included with the Workgroup Solutions, making integration into your current network simple.

For more information

The 8285 Nways ATM Workgroup Switch 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). Yor can also access the IBM Networking Home Page at http://www.networking.ibm.com.

IBM Nways ATM Workgroup Solutions Orderables

Part Number	Feature	Model	Description
51H4201		00P	8285 base unit and 12 adapters
51H4195	5503		- Twelve 25-Mbps PCI adapters
51H4196	5504		- Twelve 25-Mbps ISA adapters
51H4197	5505		8285 expansion unit with a 12-Port 25-Mbps module and twelve 25-Mbps PCI adapters
51H4198	5506		8285 expansion unit with a 12-Port 25-Mbps module and twelve 25-Mbps ISA adapters
51H4199	5507		12-Port 25-Mbps module and twelve 25-Mbps PCI adapters
51H4200	5508		12-Port 25-Mbps module and twelve 25-Mbps ISA adapters

Note: In addition to these orderable solutions, all the features announced for Model 00B can also be ordered for Model 00P.

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