

ATM Products Directory

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This is a directory of ATM products, including ATM switch, ATM router, ATM DSU, ATM Multiplexer and ATM concentrater. Suggestions and comments are welcome.

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Switch

A device (like a DMS-250 or a PBX) that responds to originator signals and dynamically connects the caller to the desired communication destination. ATM switch incorporates two layers: Physical layer and ATM layer. Generally, it should support ATM Forum Standard ABR, CBR, VBR and UBR services . ATM switch supports UNI or NNI or BICI or the combinations of these three interfaces.

For the congestion control, flow control and policing are needed. It also includes buffer management to ensure fair resource utilization between connections. Cell streams with CLP (cell loss priority) in ATM header equal to one may be optionally discarded before CLP equal to zero cell streams.

Connection Admission Control (CAC) uses profiles associate with an Network Management System (NMS) defined set of performance parameters and its static and dynamic knowledge of the ATM Layer switching fabric to minimize congestion on a per call basis for ATM Forum standard UBR, CBR, VBR and ABR sources. ATM Layer traffic and performance data are collected to monitor and to ensure end-to-end QoS guarantees are maintained.

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[3Com Corporation](#)

[SuperStack II Switch ATM OC-3c Module](#)

- The ATM OC-3c Module supports the ATM Forum Standards for LAN Emulation (LANE 1.0) allowing existing LAN users to transparently communicate over a high-speed ATM backbone. Full duplex operation gives wire speeds of 310 Mbps, virtually eliminating network bottlenecks.
- Protocols supported: Ethernet, 100BASE-T Fast Ethernet, Token Ring, FDDI, ISDN, X.25, Frame Relay, and ATM.
- Number of subscriber ports: 12/24 ports

[SuperStack II Switches](#)

- SuperStack II switches feature powerful switching engines that extend full wire-speed bandwidth to the desktop and up to 155 Mbps to servers and the backbone.
- Protocols supported: Ethernet, 100BASE-T Fast Ethernet, Token Ring, FDDI, ISDN, X.25, Frame Relay, and ATM.
- Number of subscriber ports: 12/24 ports

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[ATML](#)

VIRATA switch 1000

- VIRATAswitch supports 12 fixed 25 Mbps full-duplex ports and three expansion slots. It can be fully expanded to support 24 ATM ports at 25 Mbps or a combination of 25 and 155 Mbps parts using modular expansion slots.
- Protocols supported: Ethernet emulation.
- VIRATAswitch can switch 10Base-T, ATM25, ATM100 and ATM155 and provides over 200 possible configurations.

VIRATAswitch 7000

- VIRATAswitch 7000 offers a 650 Mbps, flexible switch fabric with three expansion slots. It can be fully expanded to support six ATM ports at 155 Mbps or over 200 combinations of 10Base-T, ATM25, ATM100 and ATM155 connections.
- The VIRATAswitch 7000 offers affordable, ATM modularity to deploy low-density workgroups for initial ATM deployments, building backbones requiring mixtures of UTP for servers or fiber for connectivity to other buildings and ATM FORUM Lane Emulation Server (LES) capability.
- VIRATAswitch 7200 supports six fixed 155 Mbps full duplex Category 5 UTP ports. This is useful for 155 Mbps workgroups, server clusters and wiring closet backbones. VIRATAswitch
- 7400 is ideally suited as a low cost campus switch “feeder node.” It supports six fixed 155 Mbps full duplex multi-mode fiber ports. VIRATAswitch
- 7600 offers six 155 Mbps single-mode fiber ports which will enable deployment of extended campus backbones, MANs and cable modem distribution systems.

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Bay Networks

Centillion 100 Switching System

- Aggregate Capacity: 10 Gbps
- SpeedView for Windows: Inband Token Ring, Out-of-band Serial
- SpeedView for UNIX: Inband Token Ring and Ethernet
- Network Management: SNMP Agent, 802.2 LLC
- Compliance: CCITT 1.361 ATM Layer Specification, ATM Forum UNI V3.0 and 3.1, ATM Forum LAN emulation (LANE) V1.0, ATM Forum Interim Interswitch Signaling Protocol (IISP)
- Centillion 100 Description 10 Gbps of Scalable Switching Capacity Offers Sustained Performance
- can load balance over parallel ATM links to create a multigigabit backbone that is free of bottlenecks.
- supports a full complement of ATM Forum standards, such as UNI SVC signaling, the Interim Interswitch Signaling Protocol (IISP), and LANE, to extend ATM capabilities in networks where multivendor interoperability is a requirement.

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[Cabletron System, Inc.](#)

[SmartCell ZX-250 ATM Switch Family](#)

- Sustainable 2.5 Gbps non-blocking switching capacity for full-line rate performance
- Extremely low latency (<11 µseconds) design enables transport of delay-sensitive applications such as video conferencing and real-time manufacturing control
- Deep shared-memory buffer for minimization of cell loss caused by traffic bursts--16K cells for ZX-250 systems; 32K cells for ZX-250i and ZX-250r systems
- High-performance, RISC-based Intel i960 processor--25 MHz for ZX-250 systems; 33 MHz for ZX-250i, and ZX-250r systems
- The Main Switch Module (MSM)--This module contains the core of the switch fabric, with buffer management for all ports and input/output header translation for up to two I/O modules
- The Expansion Switch Module (ESM)-- This module expands the port capacity of the ZX-250 switch by an additional two I/O modules, for a total of 15-155 Mbps ports.
- Advanced Early Packet Discard and Partial Packet discard to optimize relief when cell discard is required
- Ports Applications: 155 Mbps STS-3c/STM-1 UTP Category 5 , 155 Mbps OC-3/STM-1 Single/Multimode Fiber, 622 Mbps OC-12/STM-4 Single/Multimode Fiber, 25 Mbps UTP Category 3/5
- The SmartCell ZX-250 Workgroup ATM Switch --an entry-level model for bandwidth-intensive workgroup applications such as CAD/CAM and computer animation.
- The SmartCell ZX-250i Interworkgroup ATM Switch -- designed for the interconnection of multiple LAN workgroups with high-traffic ATM-attached servers
- The SmartCell ZX-250r LAN Backbone ATM Switch -- a fault-tolerant model with redundant power supplies for aggregation of native LAN and workgroup ATM switches within the wiring closet.

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[IGX 8 ATM Switch](#)

- As an extension of the StrataCom IGX multi-band, multi-service product family, this 8-slot model utilizes the same 1.2 Gbps cell-switching redundant bus that is used in the larger IGX models.
- Redundant 1.2 Gbps non-blocking cell-switched backplane
- 8 Slots: 2 slots for processor (2nd slot reserved for redundancy), 6 slots for function cards (Y cable redundancy available)

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[CTI Datacom Inc](#)

- Expansion to 48 connections at the ATM25 interface, with multiple-feature, 155-Mbps ports

- 30-msec latency, stable at any load
- 4-port TAXI module, MMF
- 2-port ATM Flex 155-Mbps module (SMF, MMF, UTP/STP)
- 25.6-Mbps interface on base model, or as a module in the expansion unit
- Token-Ring and Ethernet LAN Emulation Supports LAN Emulation Clients over UNI 3.0 and UNI 3.1 concurrently
- Up to 128 concurrent LECs
- Out-of-band and in-band management, In-band management via Classical IP, or LAN Emulation, or both

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Digital Equipment Corporation

- It supports up to 52 155-Mb/s SONET/SDH multimode and single-mode fiber ports, using a 10.4-Gb/s switch fabric.
- Five-slot chassis for high-speed workgroups and mid-sized LAN backbones
- Four-port modular linecard with enhanced performance and port options
- 622-Mb/s linecard for high-speed backbone and server connections
- Latency in the GIGAswitch/ATM switch fabric is less than 10 microseconds.
- Each port on the switch fabric supports 800 Mb/s.
- Each ATMswitch 900 delivers 800 Mb/s of sustained throughput, or up to 1200 Mb/s of performance under bursty conditions, for maximum, simultaneous throughput on all ports.
- SNMP-based management with clearVISN support UNI 3.0 and UNI 3.1 support configurable by port can be integrated so that it can provide full performance switching among ATM, Ethernet, Fast Ethernet and FDDI, through the 1.2-Gb/s VNbus distributed switching fabric, within the MultiSwitch 900 chassis, for a truly high-speed switching solution.
- ATMswitch 900F—8 total ports, consisting of 6 fixed 155-Mb/s Multimode Fiber SC type ports, plus 2 additional front-insertable modular "ATM ModPHYs" interfaces
- ATMswitch 900T—8 total ports, consisting of 6 fixed 155-Mb/s UTP-5 ports, plus 2 additional front-insertable modular "ATM ModPHYs" interfaces
- offer high-density switched Ethernet interconnects to Fast Ethernet, FDDI, or ATM as well as any combination of these technologies
- VNswitch 900EX: 12 switched Ethernet 10BaseT ports PLUS 2 modular Fast Ethernet (100Base TX/FX) ports
- VNswitch 900EA: 12 switched Ethernet 10BaseT ports PLUS 1 modular ATM port
- VNswitch 900EF: 12 switched Ethernet 10BaseT ports PLUS 1 FDDI ANSI multimode fiber (MMF) port pair single attachment station or dual attachment station (SAS or DAS)
- VNswitch 900EE: 24 switched Ethernet 10BaseT ports
- VNswitch 900XX: Four modular switched Fast Ethernet ports

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First Virtual Corp.

First Virtual V-Switch

- supports ATM at 155Mb/s, 25Mb/s and T1 speeds
- integrating both Ethernet and Token Ring frame switching
- VSW-1000 - a 1RU fixed configuration switch with 8x25Mb/s UTP ATM ports, 2x155Mb/s MM Fiber ATM Ports and a 10Base-TEthernet port
- VSW-2000 - a 2RU flexible configuration switch, available in various base unit formats and able to accept a wide range of optional First Virtual connectivity modules(8x25Mb/s ATM, 2x155Mb/s ATM, 1xEthernet)
- fully compliant with all important ATM standards such as UNI 3.x and LAN Emulation.
- equipped with a full function LAN Emulation Server (v1.0)

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FORE System, Inc.

ForeRunnerLETM 155 ATM Workgroup Switch

- Switching Fabric: 2.5 Gbps, non-blocking
- Number of Ports: 12 to 16
- Switch Transit Delay: <10 microseconds
- 155 Mbps and 622 Mbps LAN interfaces
- ATM Forum UNI 3.0/3.1 compliance, Simple Network Management Protocol (SNMP v1), LAN Emulation 1.0 (Ethernet and Token Ring)

ForeRunnerTM ASX-200BX and ASX-1000 ATM Backbone Switches

- 2.5 Gbps to 10 Gbps of bandwidth
- Up to 96 ports
- Maximum Port Speed: 622 Mbps (OC-12c/STM-4c), OC-48c-ready
- Ethernet Interface: 802.3-compatible, RJ-45 connector
- ATM Forum UNI v3.0/3.1 and SVC Protocols ;ATM Forum LAN Emulation v1.0 (Ethernet and Token Ring) IP-over-ATM using Classical IP (RFC 1577)

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General DataComm Inc.

APEX-NPX Switch

- Function: Frame Relay switch; ATM (Async Transfer Mode) switch
- Compatible with: ATM Networks; Frame Relay Networks
- Protocols supported: SNA/SDLC; Async; HDLC; Frame Relay; ATM; Ethernet gateway
- Interfaces supported: RS-449; CCITT V.35; T1 direct; X.21; E1; E2; T3; E3; SONET/SDH; TAXI
- Number of subscriber ports: 64
- Port speed: 155M bps Number of network trunks: 32
- Trunk speed: 155M bps

APEX-DV2 Switch

- Function: Frame Relay switch; ATM (Async Transfer Mode) switch
- Compatible with: ATM Networks; Frame Relay Networks
- Protocols supported: SNA/SDLC; HDLC; Frame Relay; ATM; Ethernet gateway
- Interfaces supported: RS-449; CCITT V.35; T1 direct; X.21; E1; E2; T3; E3; SONET/SDH; TAXI
- Number of subscriber ports: 64
- Port speed: 155M bps
- Number of network trunks: 32
- Trunk speed: 155M bps

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[Hitachi Internetworking](#)

Hitachi Advanced Node (AN) 1000

- The modular AN 1000 enterprise ATM switch can be configured with 5, 10, or 20 Gbps non-blocking switching bandwidth that supports 32, 64, or 128 OC-3 ports, respectively.
- The AN 1000 chassis has 32 slots which accept any combination of Line Interface Cards (LIFs). 155 Mbps LIFs provide OC-3 multi-mode fiber or unshielded twisted pair connectivity in 4-port increments, allowing smooth and cost-effective network expansion. Other LIFs include: 2 or 4 port OC-3 single mode fiber, 45 Mbps DS-3 dual port, 622 Mbps OC-12 single port, and T1/E1.
- 4 levels of delay priority, 2 levels of cell loss priority, 255 sublevels of priority, and EPD/PPD (Early Packet Discard and Partial Packet Discard) support
- supports UNI 4.0 signaling and PNNI phase 1.

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[Hitachi Telecom \(USA\), Inc.](#)

AMS 5000

- Function: ATM (Async Transfer Mode) switch
- Compatible with: ATM Networks Protocols supported: ATM

- Interfaces supported: T1 direct; DS3; OC-3; OC-12C
- Number of subscriber ports: 68 Port speed: 1.544M-622M bps
- Number of network trunks: 68
- Trunk speed: 1.544M-622M bps

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IBM Corporation

IBM 2230 Nways ATM Switch Models 600 and 650

- High-bandwidth OC12c/STM4 support
- on-blocking switch scalable to 5 Gbps
- Up to 96 000 cells data buffering per I/O module
- Up to 16 000 virtual circuits per I/O module
- 16-slot modular platform; 2 slots dedicated to an ATM Switch Module and an optional, redundant switch; 14 slots available for high-density I/O modules; 8-port T3/E3, 8-port T1/E1, 4-port OC3c/STM1 I/O modules and single-port OC12c/STM4 I/O modules
- Switch fabric:Model 600: a 4x4 matrix that runs at 640 Mbps for a capacity of 2.5 Gbps, non-blocking; 64 000 cell buffers in switch fabric; Model 650: output-buffered, self-routing 8x8 matrix, individual ports run at 640 Mbps for a total capacity of 5 Gbps, non-blocking; 128 000 cell buffers in switch fabric
- Interface specifications: Supports 8-port DS3/E3 ATM UNI module, 4-port OC3c/STM-1 ATM UNI module, 8-port T1/E1, and single- port OC12/STM-4 module.

IBM 8285 Nways ATM Workgroup Switch

- Concurrent UNI 3.0/3.1 signaling and conversion between 3.0 and 3.1
- 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)
- Out-of-band and in-band management
- Token-Ring and Ethernet LANE

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Madge Networks

Collage 250/280 Workgroup ATM Switch

- offers adaptable switching between Ethernet and ATM.
- The optional Stacking Bus allows upto 12 switches to be stacked giving up to 144 desktop ports.
- Port speed:155Mbps

Collage 530

- The Collage 530 Ethernet to ATM Access Switch provides high-speed switching between 16 Ethernet LANs and also gives them seamless access to a 155 Mbps ATM backbone.
- Fully compliant with ATM Forum UNI 3.0/3.1
- Virtual LANs span the ATM backbone

Collage 540

- The Collage 540 Token Ring to ATM Access Switch has 10 Token Ring ports (either STP or UTP) and one or two 155 Mbps ATM interfaces
- Supports standard UNI, LANE, PNNI, SNMP and IETF MIBs
- Supports Madge TrueView, HP OpenView, IBM NetView/6000, SNMP and other management platforms

Collage 740

- The Collage 740 Backbone ATM Switch is a non-blocking 2.6 Gbps ATM switch designed to add high performance ATM backbones to existing networks.

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N.E.T.

- *Switch* capacity: 622 Mbps to 10 Gbps, nonblocking
- Interfaces supported: T3, E3, OC-3c, STM-1, OC-12c, STM-4
- Maximum ports: 62 T3/E3, 64 OC-3c/STM-1 Processor
- VC/VPs supported: 16,000 per card; 256,000 per node
- NMS protocol/platform : SNMP/N.E.T. PanaVue Management Platform

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Newbridge Networks, Inc.

MainStreetXpress: 36170 Core Services Switch

- Function: ATM (Async Transfer Mode) switch
- Compatible with: ATM Networks
- Protocols supported: ATM; Ethernet gateway; Token Ring gateway; FDDI gateway
- Interfaces supported: RS-232C; T1 direct; E1; T3; E3; OC-3; OC-12
- Number of subscriber ports: 96
- Port speed: 155M bps

MainStreetXpress: 36190

- Flexible port speeds from 1.5 Mbit/s to 622 Mbit/s
- Total throughput from 10 Gbit/s, scalable beyond 1 Tbit/s

- Large data buffering (224k cell buffer per universal shelf)
- High density 16 multiport line cards per universal shelf, Universal line/trunk card slots
- T1 1.5 Mbit/s circuit emulation, N*64 kbit/s CES; E1 2 Mbit/s circuit emulation, N*64 kbit/s CES ; T3 45 Mbit/s circuit emulation, N*1.5 Mbit/s CES, N*64 kbit/s CES
- 64 kbit/s trunk switching including echo cancellation

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[Nortel](#)

Magellan Concorde

- a high-performance ATM switching system providing scalable throughput from 10 Gbit/s to 80 Gbit/s
- supports ATM Forum Compliant UNI/NNI access at DS3, OC-3c, and OC-12c rates
- Access: DS3 UNI; OC-3c/STM-1 UNI; OC-12/STM-4 UNI
- Multiple Priority System (MPS), per-connection policing and accounting, CMIP, SNMP

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[Telematics International](#)

[NCX 1E6](#)

- 3.5 Gbps non-blocking carrier-class ATM edge switch
- Supports combinations of up to 16 T3/E3 or OC3/STM-1 ports, or 64 T1/E1 channelized ports
- ATM UNI 3.1 and non-native ATM service adaptation termination's, including Frame Relay, Bitsync, and Circuit Emulation
- Supports up to 2,000 VCs, or 1,000 VCs and 256 VPs per port, each with its own Service Level Agreement, QoS parameters, and real-time UPC controls
- Advanced traffic, bandwidth, and congestion management capable of maintaining cell transfer delays of only 28-33 microseconds in a loaded, multi-service traffic environment
- Comprehensive SNMP-based network management with industry leading configuration, performance, and fault management
- Fully redundant common equipment, processing and interface cards Full NEBS and ETSI compliance for worldwide carrier-class deployment

[NCX TS2000](#)

- High Performance Cut Through LAN Switch, Up to 12Gbps Switching Bandwidth
- 128 by 128 Crosspoint Matrix, with Cross Switch Flow Control
- Self Learning User Addresses
- Ethernet, Fast Ethernet, ATM WAN Capability

- Faulty LAN Sector Detection, Broadcast Storm Protection
- Spanning Tree Support, Redundant Port Capability
- VLAN Based on Port, or MAC Address
- SNMP Management

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[Xylan Corporation\(now part of Alcatel\)](#)

OmniSwitch -5e and -9e Chassis

- serve as platforms for a broad array of frame Switching Modules. These chassis house the existing module types, including Ethernet, Token Ring, Fast Ethernet, FDDI/CDDI, and ATM.
- Maximum slots available for Switching Modules:8

ASM-155FS-1 and ASM-155FS-2 Switching Modules

- Public standards:ATM Forum User to Network Interface 3.0/3.1; ISO Q.2931; IAB RFC 1483 Encapsulations; IAB RFC 1577, IAB RFC 1755; additional ATM standards, including Q.2931, UBR, and congestion control & traffic shaping, as they each reach proposed standard status.
- Data rate:155 Mbps
- ATM adaptation layers: AAL5
- Port count: 1 or 2
- The ASM-155SM-1/2 Single mode fiber supports a distance of 15 KM.

PizzaSwitch

- The first uplink module slot supports a variety of high-speed options: a 155 Mbps ATM OC-3C (Multimode and Single mode fiber) connection to an ATM switch fabric or an ATM-based server; ATM DS-3 connections for a wide area connection, 100 Mbps 100BaseT connections to servers; 100 Mbps FDDI dual-attached connection to a backbone ring or 100 Mbps CDDI connections to servers or workstations.
- provide access to ATM, FDDI or Fast Ethernet backbones.
- Switching is performed in hardware, with processors only updating switching tables and performing frame translation. Data is moved in blocks across a highly efficient 960 Mbps pipelined bus. The PizzaSwitch architecture ensures very low latency, so that applications that require minimal delay in the switching path aren't slowed down.

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Router

A device that connects LAN segments to other LANs or WANs. Routers operate at the network OSI layer 3 and transmit data that needs to cross network boundaries. Contrast with bridge. Router is a system that controls message distribution between multiple optional paths in a network. Routers use routing protocols to gain information about the network, routing metrics and algorithms to select the "best route".

Bridge

A LAN internetworking device that filters and passes data between LANs based on Layer 2 (MAC layer) information. Bridges do not use any routing algorithms.

The following router/bridge integrate ATM with other LAN or WAN technologies. They are using Multiprotocol encapsulation over ATM and ATM LAN Emulation (LANE). With ATM Data Exchange Interface (DXI), these routers can support ATM UNI.

[3Com Corporation](#)

[BayNetworks](#)

[Cisco System, Inc.](#)

[CorssComm Inc.](#)

[Digital Equipment Corporation](#)

[Fast Comm Communication](#)

[IBM Corporation](#)

[Novell, Inc.](#)

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[**3Com Corporation**](#)

[***NETBuilder II High-Performance Bridge/Router***](#)

- RISC processing, custom ASICs, 800 Mbps backplane
- High-speed serial connectivity with support for leased lines, dial-up services, fractional or full T1/E1 or T3/E3 rates
- High-speed, hardware-based bridge filtering for Token Ring, Fast Ethernet, and FDDI, ATM
- Full array of interface modules, providing Ethernet, Token Ring, Fast Ethernet, FDDI, and ATM connections
- Full LAN support: TCP/IP, IPX, XNS, DECnet Phase IV and Phase V, AppleTalk Phase II, VINES, and OSI
- Support for V.35, RS-232, RS-449, RS-530, X.21, G.703, and HSSI connections

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Formerly Bay Networks, now Nortel Networks

- supports Ethernet and/or Token Ring, and Synchronous and ISDN BRI interfaces
- 56/64 kbps Data Service Unit/Channel Service Unit (DSU/CSU)
- incorporating Motorola's 68360 microprocessor
- Network Protocols: IP, Novell IPX, AppleTalk Phase 2, OSI, DECnet Phase IV, Banyan VINES, Xerox XNS,ST-II
- WAN: HDLC Encapsulation, PPP, Frame Relay, ISDN BRI, SMDS, X.25, ATM DXI

Access Stack Node

- using Motorola's MC68040 microprocessor
- available to provide Ethernet, 100BASE-T (Fast Ethernet), Token Ring, FDDI, Synchronous, T1, E1, ISDN BRI, and ISDN PRI interfaces
- Network Protocols: IP with RIP, OSPF, EGP/BGP; OSI; DECnet Phase IV; Novell IPX with RIP, NLSP; Banyan VINES; AppleTalk Phase 2; Xerox XNS; ST-II
- WAN: HDLC Encapsulation, PPP, Frame Relay, SMDS, X.25,ATM DXI, ISDN BRI, ISDN PRI

BayStack Advanced Remote Node

- contains Motorola 33 MHz MC68040 and MC68360 microprocessors
- connectivity: Ethernet (15-pin AUI connector, RJ-45), Token Ring (9-pin MAU connector), Serial (44-pin: RS-449/422, RS-232, RS-530, V.28, V.35, X.21), ISDN BRI S/T (RJ-45), ISDN BRI U (RJ-45: integral NT1), 56/64 kbps DSU/CSU (RJ-48-C)
- Network Protocols:IP, Novell IPX, AppleTalk Phase 2, DECnet Phase IV, Banyan VINES, OSI, Xerox XNS
- WAN: HDLC Encapsulation, PPP, Frame Relay, SMDS, X.25 (including IPEX), ATM DXI Backbone Link

Node/Backbone Concentrator Node

- Symmetric multiprocessor
- LAN interfaces: Ethernet , Token Ring, 100BASE-T, FDDI , ATM
- Network Protocols:IP, OSI, DECnet Phase IV, Novell IPX, Banyan VINES, AppleTalk Phase 2, Xerox XNS, ST-II
- WAN: HDLC Encapsulation, PPP, Frame Relay, SMDS, X.25, ATM DXI, ISDN PRI

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Cisco System, Inc.

Cisco 7500 Series

- RSP1---MIPS RISC CPU, external clock speed of 50 MHz, and an internal clock speed of 100

MHz (Cisco 7505 only)

- RSP2---MIPS RISC CPU, external clock speed of 50 MHz, and an internal clock speed of 100 MHz (Cisco 7507 and Cisco 7513 only)
- RSP4---MIPS RISC CPU, external clock speed of 100 MHz, and an internal clock speed of 200 MHz (all Cisco 7500 series routers)
- 32-MB DRAM default, upgradeable to 128 MB
- 8-MB Flash memory via PCMCIA Flash memory cards, upgradeable to 40 MB
- Four slots in the Cisco 7505, Five slots in the Cisco 7507, Eleven slots in the Cisco 7513

[Cisco 7200 Series](#)

- Four slots for port adapters and service adapters in the Cisco 7204; six slots for port adapters and service adapters in the Cisco 7206

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CrossComm Inc.

XLT-F - LAN to ATM Edge Router

- Connects legacy LANs to high throughput, ATM wide area networks or ATM backbones.
- Virtual LAN capability allows multiple, geographically separated segments to appear as a single LAN. State-of-the-art software controls traffic across the ATM LAN by containing broadcasts and multicasts within the virtual LANs.
- Multi-protocol support allows transparent integration with existing LANs and isolates existing applications from ATM protocol issues.
- High-performance modular architecture allows for mixed configurations of ATM, Ethernet and Token Ring Networks.

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Digital Equipment Corporation

- provide high-performance multiprotocol routing and bridging over high speed WAN services such as Frame Relay, T3/E3 and ATM
- Provides routing for TCP/IP hosts, Novell NetWare nodes, DECnet and DECnet/OSI Phase IV and V nodes, OSI-compatible systems, and AppleTalk nodes
- Offers easy configuration and management via the clearVISON network management product suite

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Fast Comm Communication

F9200 WEB.router

- Interface Choice: 56K/64K DDS compatible CSU/DSU; Serial network connection for fractional and full T-1/E-1; V.35 EIA 530 DCE using DB-25 to 2.048 Mbps; ISDN BRI.
- Protocol: Frame Relay.
- Management: Supervisor Port: RS-232 on RJ45, async to 38.4 kbps, password protected, menu driven; SNMP: MIB-II with extensions, TRAPs defined for dynamic alarming capability; Telnet: Full access to configuration menus and statistics. Access is available from user or network ports, local or remote.
- User Interface Port: Ethernet port at 10 Mbps, auto selectable; 10BaseT, or AUI
- Ethernet Protocols: IP, RIP, BootP, ARP

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IBM Corporation

IBM 2210 Nways Multiprotocol Router

- Expanded connectivity with a family of new adapters including ISDN PRI, 25 Mbps ATM and 4- and 8-port WAN concentration, in addition to the ISDN BRI adapter
- ATM Forum-compliant LAN Emulation and Classical IP

IBM 2218 Nways Frame Relay Access Device

- Full network management with NetView® and SNMP
- Optional, integrated DSU/CSU and ISDN BRI adapters
- Immediate line-cost savings and the advantages of Frame-Relay transport for networks with SNA, bisynchronous, polled asynchronous and client/server protocols
- Interoperability ensured by RFC 1490 compliance
- SNA session resiliency--bandwidth priority allocation, extensive Frame-Relay controls and alternate routing

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- [ATM support: ATM Forum UNI Specification V3.1; frames are transferred across ATM using AAL-5.](#)
- [Bridging: Transparent bridging supported Source-route bridging](#)
- [Filtering: MAC address, Source SAP and supported Ethernet type Hop count, Source SAP, SNAP header, MAC address and Ring number](#)
- [Connections:](#)
 - [ATM: 100-Mbps, multimode fiber interface \(as defined in ATM Forum UNI Specifications V3.1\); duplex SC connection front-panel status LEDs.](#)
 - [Ethernet: Two, RJ-45 shielded connectors for 10BASE-T for each LAN Attachment Module \(base or optional feature\). One 15-pin, 802.3 standard AUI interface is also provided to be used instead of one of the RJ-45 connectors. Front-panel status LEDs are provided.](#)

- [Token Ring: Two, RJ-45 shielded connectors for each LAN Attachment Module \(base or optional feature\). STP or UTP cabling can be used with the appropriate connectors or conversion cables. Front-panel status LEDs are provided.](#)

[Go Back to the ATM Router/Bridge](#)

[Novell, Inc.](#)

NetWare® MultiProtocol Router™

- provides concurrent routing of TCP/IP, IPX®, SNA, and AppleTalk, as well as source route bridging for NetBIOS and LLC2 applications.
- connects asynchronous, switched 56, and ISDN dial-on-demand networks, as well as leased digital lines, ATM, frame relay, X.25 and SMDS.
- NetWare BranchLink Router 3.1 and NetWare Enterprise Router 3.1 WAN·Extensions 3.1 SNA·Extensions 3.1
- Compliance:IPX ,IP, AppleTalk, PPP, Source Route Bridge, Link/ATM, Data Link Switch,Link/SNA

[Go Back to the ATM Router/Bridge](#)

DSU/CSU

Data Service Unit/Channel Service Unit. A communications device that connects an in-house line to an external digital circuit (e.g. T1). The DSU converts data into the required format, while the CSU terminates the line, provides signal regeneration and remote testing.

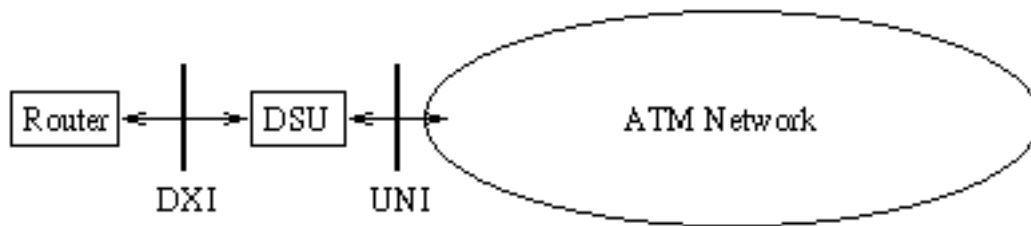


Figure 1 ATM DSU

As Figure 1 show us, ATM DSU interfaces internetworking equipment (router, etc.) to an ATM switching network. It supports ATM DXI and UNI.

[3Com Corporation](#)

[ADC Kentrox](#)

[Digital Transmission Systems, Inc.](#)

[Larscom](#)

[RAD Data Communication Ltd.](#)

[Verilink Corporation](#)

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[**3Com Corporation**](#)

AccessBuilder 6200 Broadband Access Multiplexer (see Mutiplexer)

[Go Back to the ATM DSU/CSU](#)

[**ADC Kentrox**](#)

[*DataSMART 554/558*](#)

- Line Rate T1 (1.544 Mbps)
- Framing SF, ESF, Ericsson
- Line Code: AMI, B8ZS
- Protocol: Frame Relay or ATM DXI
- Mechanical: 2-slot shelf: RJ48C socket; 12-slot shelf: DA15 plug
- DataSMART 554 includes dada port for router or video connectivity
- DataSMART 558 also includes:T1 add/drop port for PNX connectivity, Ethernet port manages on shelf, multiple shelves, oy user entire T1 network

[*DataSMART T3 ADSU*](#)

- T3 ATM Data Service Unit
- ATM UNI, SMDS SNI and Clear Channel modes
- Frame Relay, ATM DXI, SMDS DXI (SMDS mode)
- AAL5, AAL3/4
- HSSI and V.35
- Selectable Nx512 kbps clock rates
- Embedded SNMP and TELNET
- Scrambling option support
- 32 concurrent reassemblies

[Go Back to the ATM DSU/CSU](#)

[**Digital Transmission Systems, Inc.**](#)

[FlexT1 Intelligent ESF T1 ACT-2 DSU/CSU ACT-3 CSU](#)

- ACT-2 provides T1 network to N x 56/64 kbps user connectivity (where n=1 to 24)
- ACT-3 provides T1 network to T1 CPE connectivity
- Integral ESF CSU supports TR 54016, TR 62411 and ANSI T1.403
- D4 and Extended Super Frame (ESF) compatibility
- Compatible with T1, FT1 and high speed (T1/FT1) frame relay service
- In-band network management via Facilities Data Link (FDL) using DTS FlexTnet provides remote, menu driven capabilities without the need of dial-up modems
- Complete suite of performance monitoring statistics including near and far end statistics and historical summary information for continuous monitoring of expensive T1 lease lines
- Embedded test functionality allows quick determination of network outages as well as identification of source of failure
- Allows intelligent ESF feature set with remote configuration and testing at an economical cost

[Go Back to the ATM DSU/CSU](#)

[Larscom](#)

[Access T](#)

- SNMP management via internal agent
- More efficient use of T1/FT1 bandwidth and access lines
- DTE ports support V.35, RS449, and EIA 530 interfaces.
- Data rates may be any multiple of 56 or 64 kbps, with several options for pulse density assurance and clear channel capability.
- A fully-loaded Access-T 1500 provides 30 DTE ports and 15 drop-and-insert ports.
- Combining the features of a multiplexer, a DSU, and a CSU, Access-T lets you leverage the full benefits of today's T1 and fractional T1 services

[Orion 56/T1](#)

- Single unit connects to any DDS, FT1, or T1 service--including Frame Relay
- Upgrades to higher-rate service without replacing equipment--just reconfigure software
- Monitors and diagnoses performance problems without external test equipment Integrates easily into an SNMP management system
- Two built-in network interfaces--56/64 kbps and T1
- Serial data interface supporting V.35, RS232, and EIA 530
- T1 compatibility with AT&T and ANSI ESF standards, plus D4 Network and data port loopbacks under local and remote control
- Built-in test pattern generator and BER tester

[Go Back to the ATM DSU/CSU](#)

[**RAD Data Communication Ltd.**](#)

[**FCD-T1**](#)

- T1 or Fractional T1 CSU/DSU
- Supports one or two data ports
- Selectable sync data rates: n x 56, n x 64 kbps
- Data interfaces: V.35, RS-530, V.36/RS-449 or X.21
- Setup, control and monitoring via front panel, ASCII terminal or SNMP management
- In-Band remote management through Facility Data Link (FDL) in ESF mode or on dedicated timeslot
- Dial-in option for remote out-of-band management
- Main link T1 available with or without CSU
- Framing format (main and sub-T1 ports): D4, ESF, unframed
- Zero Suppression (main and sub-T1 ports): B7ZS, B8ZS, Transparent
- T1 interface complies with: AT&T TR62411, TR62421, ANSI T1.403, AT&T 54016 (local support)
- Enhanced diagnostics include: User activated main link, data port, and sub-T1 port local and remote loopbacks ;Data port BER tester ;Fractional T1 in-band loop
- Storage of 24 hours of T1 network performance monitoring
- 100 alarm records and alarm relay activation upon alarm event, Alarm mask configurable for any alarm

[Go Back to the ATM DSU/CSU](#)

[**Verilink Corporation**](#)

AS100 Single Port CSU/DSU AS150 Drop-and-Insert Single Port CSU/DSU

- Embedded SNMP option
- Automatic Dial Out
- Compatible with ESF standards
- Built-in diagnostics
- 32-character front panel LCD
- UL 1950 compliant

AS56 56/64k CSU/DSU AS56Plus Multirate CSU/DSU

- Embedded SNMP option for full Gets, Sets, and Traps
- Compatible with HP OpenView™, SunNet Manager™, and IBM NetView 6000™
- Automatic Dial Out

- Compatible with ESF standards (AS56Plus) only
- Built-in diagnostics
- 32-character front panel LCD
- UL 1950 compliant
- ConneCT CSU/DSU Products Access to Carrier T1, fractional T1, and 56K services
- One to two application ports
- Loopback diagnostics

[Go Back to the ATM DSU/CSU](#)

Multiplexer - MUX

A device that combines 2 or more signals into a single composite data stream for transmission on a single channel. For example, an M1-3 MUX combines 28 DS-1s into a DS-3.

The ATM Multiplexer sends data through an ATM data network to Internet Service Providers or other network providers and incorporates the interface to ATM router or switch.

[3Com Corporation](#)

[ADC Kentrox](#)

[Cisco System Inc.](#)

[FORE System, Inc.](#)

[General DataComm Inc.](#)

[Larscom](#)

[NEC Electronics](#)

[N.E.T.](#)

[Nortel](#)

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[**3Com Corporation**](#)

AccessBuilder 6100 T1/E1 Inverse Multiplexers

- deliver native LAN-speed performance and multimegabit applications over low-cost public or private T1/E1 WAN facilities, supplies native Ethernet throughput at more than 14,000 packets per second.
- Built-in direct Ethernet LAN interfaces and integrated CSUs simplify connectivity by eliminating extra equipment.

- Support of industry-standard Ethernet 10BASE-T (AUI, RJ-45) with an integral Ethernet bridge, and serial (HSSI, V.35, and RS-449/X.21) interfaces ensures direct connectivity to existing equipment.

[AccessBuilder 6200 Broadband Access Multiplexer](#)

- delivers a combination of FT1/T1 and high-speed services over T3 and fractional T3 circuits from a single, SNMP-manageable platform. Supports up to four T3 trunks, 84 T1s, 84 virtual DSUs, and 24 high-speed inverse multiplexed connections
- Delivers high network up time through extensive resiliency features including redundant hardware, hot swap, and dynamic configuration
- The T3 trunk card is channelized down to the DS1 level using industry standards, guaranteeing connections across all carrier networks and interpretability with standard T1 DSUs
- Using a single AccessBuilder 6200 unit fully populated with DSMs, network managers and service providers can replace 84 T1 DSUs plus three M13 multiplexers.

[Go Back to the ATM MUX](#)

[ADC Kentrox](#)

[MagnumPlus](#)

- acts as a highly economical feeder node, backhauling Ethernet, Token Ring, ATM, Frame Relay and PRI ISDN signals from the furthest edges of the network, and feeding it back to the core over existing SONET/SDH, T3/E3 or fiber infrastructures
- provide transparent, native rate transport of 10 Mbps Ethernet and 4 or 16 Mbps Token Ring LAN traffic. Additionally, synchronous and asynchronous T1/E1, RS232, V.35, and RS449, with speeds ranging from 1.2 kbps to 9.4 Mbps, can be simultaneously supported. Mainframe and minicomputer support is also available for IBM 3270, AS/400, 5080 and 6090, and Spectragraphics.

[Go Back to the ATM MUX](#)

[Cisco System Inc.](#)

[Video Codecs and Multiplexers](#)

This equipment converts video and audio streams to digital information and then compresses them into a flow of ATM cells. These cells are fed into an ATM network for transport to the destination where they decompressed and converted back into video and audio. Where multiple video streams must be compressed and converted, an optional multiplexer can aggregate them for input to a single port on an ATM switch. This technology is used in applications including distance learning, medical imaging, telemedicine, broadband video distribution, and remote arraignment.

[Go Back to the ATM MUX](#)

[FORE System, Inc.](#)

CellPath™ 90/90E ATM T1 WAN Multiplexer

- Ethernet bridging over RFC 1483-compliant PVCs
- ATM DXI and frame relay interworking
- V.35, RS-449, RS-530 serial ports with bandwidth on demand
- ATM Forum UNI v3.0 T1 interface, ATM Forum UNI v3.0 traffic management

CellPath™

- *calable ATM adaptation and WAN access*
- *ATM and non-ATM concentration*
- *ATM DXI and Frame Relay Interworking*
- *ATM Forum T1/E1 circuit emulation; ATM T1/E1, T3/E3, OC-3c/STM-1 interfaces*
- *In-band SNMP and Telnet support*

[Go Back to the ATM MUX](#)

[General DataComm Inc](#)

[TMS-3000 \(Transport Management System\)](#)

- *Flexible network topology and system configurations- point-to-point, delta, mesh or star*
- *Branch office traffic consolidation - LAN, voice, video, and data traffic over economical T1/E1 or narrowband facilities*
- *Configuration as a T1/E1 time slot interexchange switch, LAN bridge, or frame relay switch*
- *Multiprotocol support includes TCP/IP, IPX, SR, SRT, frame relay and SNA/SDLC*
- *Comprehensive data traffic options - T1/E1, fractional T1/E1, 56/64 kbps; SNA, HDLC, SDLC, frame relay*
- *Simplified circuit management including automatic routing, an intelligent automatic reroute feature, and off-line network modeling*

[Go Back to the ATM MUX](#)

[Larscom](#)

[Mega-T](#)

- *bridges the gap between T1 and T3*
- *Inverse-multiplexing up to four T1 lines, Mega-T creates a single logical data channel which is the sum of the T1 bandwidths*
- *On the DTE side, Mega-T provides an EIA530 (V.35/RS449) or HSSI port operating at data rates up to 6.112 Mbps.*

- *On the network side, T1 interfaces support all standard framing and coding formats, and include optional built-in CSUs.*
- *includes advanced monitoring and alarm functions And built-in diagnostics*

[Mega-T 241](#)

- *transports E1 traffic over two T1 lines*
- *can connect an E1 multiplexer, channel bank, or PBX directly to a public or private T1 network. Or can extend an E1 circuit across a T1 network.*
- *compensate for up to 22 milliseconds of differential delay between the two T1s*
- *An RS232 terminal interface allows local or remote management of all Mega-T functions.*

[MegaSpan](#)

- *T1 Inverse Multiplexer and Ethernet Bridge*
- *providing remote LAN interconnection at rates from 1.5 to 6 Mbps over inverse-multiplexed T1 WAN circuits*
- *It can be used equally well by carriers to provide multi-megabit transparent network transport (TNT) services, and by enterprise network designers to link remote LANs using standard T1 services.*
- *provides a 10Base-T LAN port with full buffering, packet filtering and monitoring functions, and spanning tree capability.*
- *four T1 ports with integral CSUs are inverse-multiplexed to create a multi-megabit data channel for the LAN traffic*
- *monitoring and diagnostic features, plus automatic rate fallback should one of the inverse-multiplexed T1s fail.*

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[NEC Electronics](#)

NETNEX™ 8110 & 8111 T1 ATM CLAD MUX

- *Up to four 1.544 (or 2.048) Mbps Ports*
- *One OC-3 MMF link*
- *Supports ATM Forum Circuit Emulation Service (CES) Supports ATM Forum AAL1 Constant Bit Rate (CBR) Supports Structured and Unstructured Services*
- *SNMP Based Network Management*
- *Battery Backup for Power Failure Protection*
- *Desktop, 19" Rackmountable, or Wall Mount*
- *Battery Backup in the event of power failure*
- *Self diagnostics and fault management*

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[N.E.T.](#)

- *Switch capacity 3 Gbps, nonblocking*
- *Interfaces T1, E1, T3, E3, OC-3c, STM-1*
- *Maximum ports 16 T3/E3 or OC-3c/STM-1 or 64 T1/E1 channelized*
- *Redundancy Power, fans, ACS, broadband IOC, ACS to IOC buses: 1:1 wideband IOC: 1:n*
- *Buffer capacity 8,704 cells per IOC*
- *VC/VPs supported 750 VCs and/or 256 VPs per port*
- *Connection setup PVC, soft PVC supported; SVC planned*
- *Service classes CBR, VBRrt, VBRnrt, UBR*
- *Congestion handling Policing (32 profiles per VC), shaping, early packet discard*
- *Adaptation ATM, frame relay, CES, Bitsync*
- *Management protocol SNMP*
- *Management platform Open, Management System, PanaVue Management Platform*

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[Nortel](#)

DMT-300 Fiber Multiplexer

- *an advanced M1-3 MUX capable of multiplexing up to seven low-speed DS-1 signal groups into one DS-3 (44.736 Mbps) signal, with each low-speed signal group consisting of four DS-1s*

FMT-150 Fiber Multiplexer

- *transmits one, two, or three DS-3 signals, up to 84 DS-1s, and a maximum of 2,016 voice circuits*
- *uses 150 Mb/s fiber transport plug-ins (with up to three DS-3 inputs) and offers plug-in commonality with the DMT400 system.*
- *OC-1 SONET Access Module*
- *fiber transmission multiplexer for 51.84 Mbps DS-1 and Ethernet native-LAN-speed data-service*
The factory-ready OC-1's self-contained plug-in modules support 4, 8, 14, or 28 DS1s with two native speed Ethernet LAN ports, with a choice of protection schemes.
- *The modules are also available with an STS-1 interface for connecting to SONET network elements or interconnecting two OC-1 modules. (STS1 is the electrical equivalent of the SONET-defined optical signal with a rate of 51.84 Mbps.*

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ATM Concentrator

ATM Concentrators provide ATM access concentration from multiple customers(e.g. workstation, PBX) and services(e.g. T1/E1). They enable voice, video, and data services over a single ATM network infrastructure. ATM Concentrator support ATM UNI.

[ADC Kentrox](#)

[IBM Corporation](#)

[Netro Corporation](#)

[Telematics International](#)

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[ADC Kentrox](#)

[AAC-1 & CellSMART](#)

- *T1/E1 ATM Access Concentrators*
- *Protect existing equipment investments while migrating to ATM*
- *Optimize network utilization with dynamic bandwidth allocation*
- *Leverage the benefits of ATM at T1/E1 rates*
- *Manage remote devices via SNMP and in-band communication*

[AAC-3](#)

- *Migrate existing Enterprise network Frame Relay, SMDS, Ethernet LAN to the ATM wide-area network, using the industry's most powerful and cost-effective ATM access concentrator.*
- *Combining voice, data, video, and image traffic on the same network.*
- *configured and managed through an in-band SNMP connection and a unique web-based, graphical user interface.*

[Go Back to the ATM Concentrator](#)

[IBM Corporation](#)

IBM 8282 Nways ATM Concentrator

- *Eight RJ-45 ports in base; four additional ports in the 25-Mbps*
- *ATM Module ATM Forum UNI Specification V3.0; frames are transferred across ATM using AAL-5. Also supports ILMI registration and Q.2931 call setup.*
- *ATM: 100-Mbps multimode fiber interface (as defined in ATM Forum UNI Specification V3.0);*

duplex SC connection; front-panel status LEDs. Also 8 or 12 RJ-45 ports for UTP or STP connection to 25-Mbps ATM adapters.

- *EIA 232: One EIA 232 serial port is provided with a DB-25 connector on the front panel. You can access the Configuration and Management Utility from a workstation attached to this port.*

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[Netro Corporation](#)

AirMAN 3000 wireless ATM Access Concentrator

- *ATM-based backplane (1 Gbps)*
- *ATM and Frame Relay (FR) trunk options*
- *Wireless Trunk - support to 4xE1 (E3 future option)*
- *Trunk Interfaces:*
 - *Frame Relay - UNI and NNI up to E1 (56 Kb/s to 2.048 Mb/s)*
 - *Channelized and clear channel options*
 - *ATM - UNI and NNI for E1, E3, DS3 future options*
- *PVC and SVC support*
- *Integrated WTM uses standard AirMAN Radio Units (26 or 38 GHz)*
- *Optional redundancy (power and WTM)*

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[Telematics International](#)

[NCX CS600](#)

- *Integrates multiple voice, video, and data application onto a common ATM-wide area network*
- *Comprehensive set of ATM interfaces including T3, E3, OC-3, STM-1 and HSSI*
- *Enterprise access with 1.6 Gbps ATM fabric*
- *Support for CBR, VBR and UBR services*
- *Compatible with both local and wide-area ATM networks*
- *SNMP manageability and ATM MIB support*

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Last Modified August 14, 1997