

Ascend

MAX 2012/2024

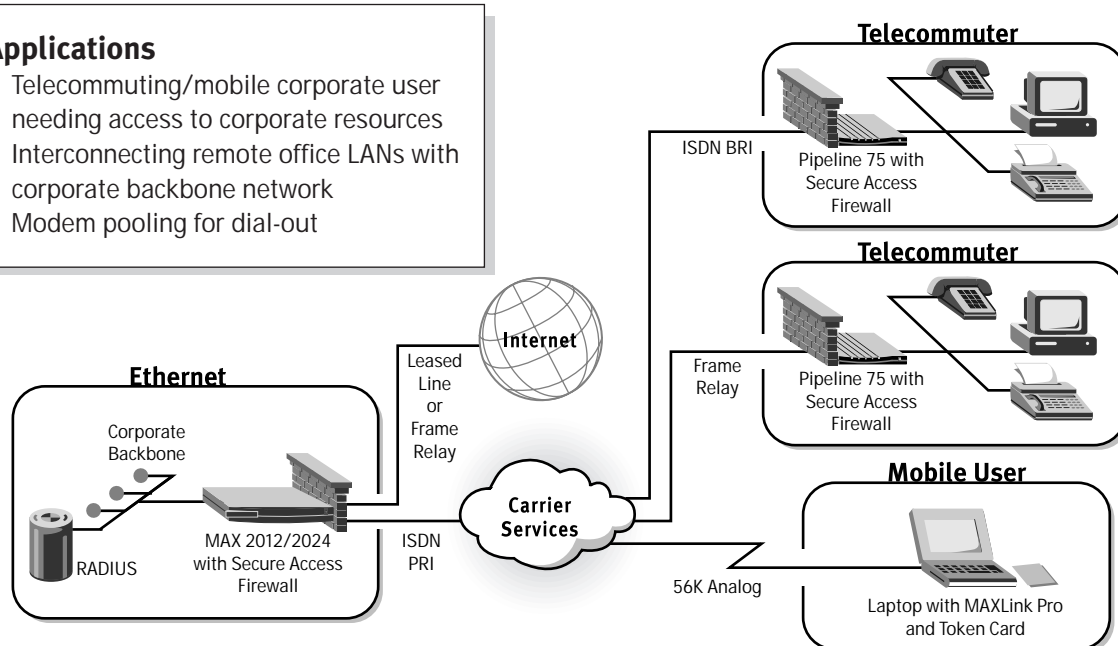
High-density multiprotocol WAN access switches with channelized T1/E1, V.35, ISDN PRI, or Frame Relay interface. Supports up to 24 Series56™ Digital Modems, integrated firewall, MAXLink Pro™ (client IP/IPX software), MAXDial™ (dial-out software), IP/IPX/AppleTalk and Java-based GUI Configurator.



Selling Brief

Applications

- ¥ Telecommuting/mobile corporate user needing access to corporate resources
- ¥ Interconnecting remote office LANs with corporate backbone network
- ¥ Modem pooling for dial-out



Where to Sell MAX™ 2012/2024

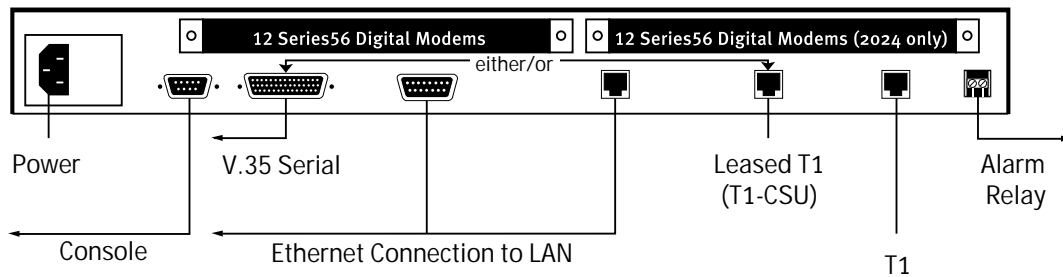
- ¥ Corporate locations with 100 to 200 dial-in telecommuters or mobile workers
- ¥ Companies upgrading from a pooled modem environment to ISDN/56 Kbps analog access
- ¥ Branch offices of larger companies
- ¥ Companies with dial-in connections concerned about network access by hackers
- ¥ Companies needing shared fax and dial-out capabilities on the corporate LAN
- ¥ Small to mid-sized Internet Service Providers (ISPs)

Key Selling Features

- ¥ **Most cost-effective WAN access switch today** per port costs up to half the competition's.
- ¥ **Scalability with Flexible Bandwidth** MAX units can be stacked up to five high for enhanced performance and managed as a single virtual device.
- ¥ **High Performance** supports up to 24 high-speed, K56flex-compatible digital modems.
- ¥ **Hybrid Access™ Solution** supports analog (up to 56 Kbps), ISDN BRI/PRI, T1, Frame Relay, and Ethernet. Routes IP, IPX and AppleTalk.
- ¥ **Comprehensive Security** PAP, CHAP, Ascend Access Control™ (extended RADIUS) and integrated Secure Access™ Firewall for iron-clad remote networking security.
- ¥ **Bundled suite of cost saving client software** including IP stack, dial-in, dial-out, and fax-out capabilities from the desktop.
- ¥ **Bandwidth on demand** Bandwidth is dynamically added or subtracted for maximum performance with minimum cost.
- ¥ **Setup in 15 minutes** with Java-based GUI configurator; minimizes user configuration requirements, to maximize reseller installation margins.



MAX 2012 / 2024 Features



Product Overview

The MAX 2012 and 2024 are high-performance, high-density WAN access switches with 12 or 24 digital modems for routed access to IP, IPX and AppleTalk networks. Features include integrated firewall, remote networking software, bandwidth management, software upgradability and network interoperability.

MAX 2012/2024 includes:

- ¥ Integrated IP, IPX and AppleTalk routing, multiprotocol bridging
- ¥ One channelized T1/E1 PRI interface
- ¥ One Leased T1 (with CSU) interface or V.35 serial interface
- ¥ A single 12-port Series56* (K56flex-compatible) digital modem module for the MAX 2012. Two 12-port modules for the MAX 2024 for 24 modems. Multiprotocol routing and bridging for IP, NetWare/IPX and AppleTalk
- ¥ MAXLink Pro client software (IP/IPX stack)
- ¥ MAXDial client software (dial-out, dial-in and fax out from the desktop)
- ¥ Integrated Secure Access Firewall
- ¥ MAX Stack to link up to five MAX 2012/2024 units as one logical device
- ¥ Java-based configuration software for cross-platform set-up
- ¥ Extended RADIUS capabilities with Ascend Access Control

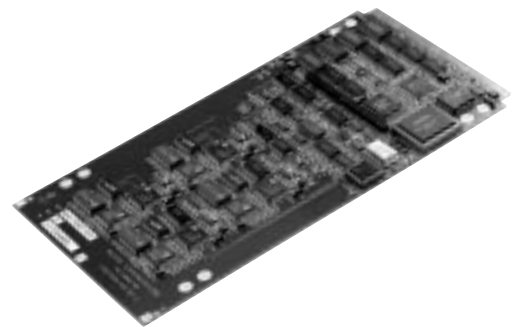
Customers can expand remote networking capabilities by adding ISDN PRI (MX-SO-ISDN), or Hybrid Access ISDN PRI / Frame Relay software (MX20-T1-HA24) upgrades. MAX 2012 can be upgraded to 24 digital modems by adding MX-SL-12MOD-S56.

Hardware Specifications

LAN Interface	Ethernet 10Base-T via RJ45 jack, Ethernet AUI (10 Base 5) via DB-15 connector.
WAN Interface	One T1/PRI with an integrated CSU. One FT1/T1 for leased line services. Serial WAN V.35/T1
Software Upgrade	Built-in flash RAM, remote downloadable
Modems	K56flex, V.34, MNP 10-EC, MNP, V.42bis, fax modems up to 14.4 kbps

Series56 Digital Modem Modules

- ¥ Series56 V.34- and K56flex-compatible modems use Rockwell's market leading DSP (Digital Signal Processing) technology. Series56 Digital Modems support wire-speed K56flex operation and are compatible with V.34 modems and below.
- ¥ Improved system performance due to hierarchical processing in the Series56 Digital Modems improves overall system throughput by 50% over systems with previous V.34 modems.
- ¥ True digital operation based on DSP-based design which contains no analog components to assure optimal performance.
- ¥ Software upgrades to modem code can be done locally, or across the network so new hardware is not required if standards change.



* Current FCC restrictions, line conditions and other external factors will reduce data transmission rates and may reduce data transmission rates significantly.

Competition

The following competitors were selected on the basis of your customer requesting the following features in a remote access switch: dial-in analog and ISDN, for up to 24 concurrent dial-in sessions, and support for one T1/E1/PRI. Other competitive products you may encounter are Shiva's AccessSwitch, USR's Total Control, 3Com AccessBuilder 5000 or Bay Annex 6300 however, these are a better feature fit against Ascend's MAX 4048.

Feature	MAX 2012/2024	3Com AccessBuilder 4000	Bay Annex 6300	Cisco 3640	Cisco 5200	Shiva LANROVER E Plus	USR NETServer I-8 or I-16
Integrated Digital Modems	Yes	NO	Yes	NO	Yes	Yes	Yes
List Price/Analog Port							
Maximum modems/box	12 or 24	N/A	32	N/A		8	8 or 16
Price/modem	\$700 (2012) \$580 (2024)	\$~918 (8)* \$~700 (16)*	\$1312 (16) \$1208 (24)	\$~1392 (12)* \$~980 (24)*	\$1050 (24)	\$1,125 \$875 (I-16)	\$1,125 (I-8)
Wan Connectivity/Bandwidth Management							
T1	Yes	Yes	Yes**	Yes	Yes	NO	Yes
ISDN PRI	Yes	NO	Yes	Yes	Yes	NO	Yes
V.34	Yes	NO	Yes	NO	Yes	Yes	Yes
K56flex	Yes	NO	Future	NO	Yes (Q3)	Future	NO (x2)
Frame Relay	Yes	NO	Yes	No	Yes	NO	NO
MultiLink Protocol (MP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MultiLink Protocol Plus (MP+)	Yes	NO	NO	NO	NO	NO	NO
MultiChassis MP	Yes	Yes	NO	Yes	Yes	Yes	NO
MultiChassis MP+	Yes	NO	NO	NO	NO	NO	NO
Hardware Data Compression	Yes	NO	NO	NO	NO	NO	NO
Security							
Dynamic Firewall	Yes	NO	NO	NO	NO	NO	NO
RADIUS	Yes	Future	Yes	Yes	Yes	Yes	Yes
Extended RADIUS	Yes	NO	NO	NO	NO	NO	NO
VPN Tunneling support	Yes	NO	NO	Yes	Yes	NO	NO
Management and Control							
Modem Round-Robin Allocation	Yes	NO	Yes	NO	NO	NO	NO
Java GUI configurator	Yes	NO	NO	Yes	Yes	NO	NO
Routed Protocol Support							
IP	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX	Yes	Yes	Optional	Yes	Yes	Yes	Yes
AppleTalk	Yes	NO	Optional	Yes	Yes	Yes	NO

All products support the following features: PPP, PAP/CHAP, and SNMP management. Information current as of May 1997 and subject to change.

* Product requires external modems 3Com AccessBuilder price and Cisco 3640 price assumed at \$200 per modem.

** T1 Support requires purchase of a Bay Annex 6100.

Selling Against the Competition

3Com AccessBuilder 4000

- ¥ **High cost per port** Analog cost per port is 20-30% higher.
- ¥ **Lacks integrated digital modem support** results in expensive, complex and unmanageable external modem solution.
- ¥ **Lacks Frame Relay support.** Ascend offers optional Frame Relay support.
- ¥ **Lacks robust security options.** Does not include RADIUS or an integrated firewall. The MAX 2012/2024 includes extended RADIUS and an integrated, dynamic firewall.
- ¥ **Limited expansion capability.** Maximum of 16 dial-in ports versus 24 for MAX 2024.
- ¥ **Not scalable.** Lacks MP+ and MultiChassis MP/MP+ support. The Ascend MAXs can be stacked for scalability.
- ¥ **Incomplete routing support** no AppleTalk Routing. Ascend supports IP, IPX and AppleTalk.
- ¥ **Lacks cross-platform configuration utility.** Ascend provides a free Java configurator.
- ¥ **Lacks integrated VPN tunneling support.** Ascend MAX supports PPTP and ATMP.
- ¥ **Lacks modem Round-Robin Allocation.** Ascend MAX supports Round-Robin Allocation for auto-recovery from failed modem.

Bay Networks Remote Annex 6300

- ¥ **Extremely high cost per port** Ascend wins hands down. Analog cost per port is 100% higher.
- ¥ **Lacks Frame Relay support.** Ascend offers optional Frame Relay support.
- ¥ **Lacks robust security options.** MAX 2012/2024 includes integrated, dynamic firewall.
- ¥ **IPX and AppleTalk routing are extra cost** options; Ascend includes them as standard.
- ¥ **Not scalable.** Lacks MP+ and MultiChassis MP/MP+ support. The Ascend MAXs can be stacked for scalability.
- ¥ **Lacks cross-platform configuration utility.** Java configurator included free with every Ascend MAX.
- ¥ **Lacks Integrated VPN Tunneling support.** Ascend MAX supports PPTP and ATMP.

Cisco 3640/5200

- ¥ **High cost per port** Ascend wins hands down. Cisco's analog cost per port is about 70% higher for the 3640, 45% for the 5200.
- ¥ **No integrated analog modem support** forces customers to purchase analog and digital access solutions separately, resulting in expensive, complex and unmanageable external modem pool.
- ¥ **Unproven design.** Cisco 5200 and 3640 are new to market. Ascend's MAX technology has been field tested extensively for three years in the worlds largest ISPs.
- ¥ **IP, IPX and AppleTalk routing are extra cost** software options for 3640/5200. These protocols are standard with the MAX 2012/2024.

- ¥ **3640 Lacks Frame Relay support.** Ascend includes Frame Relay support remote office connectivity options.
- ¥ **Lacks robust security options.** MAX 2012/2024 includes integrated dynamic firewall. Cisco provides no similar capability.
- ¥ **Lacks bundled client software.** MAX 2012/2024 includes full complement of client application software. Cisco charges extra for similar client software.
- ¥ **Lacks MP+ and MultiChassis MP/MP+ support.** Cisco 3640 and 5200 are non-scalable products. Ascend MAX products are stackable with full MP and MP+ across all chassis.

Shiva LanRover E Plus

- ¥ **High cost per port** Ascend wins hands down. Analog per port cost 90% higher.
- ¥ **No high speed WAN connectivity** Analog or ISDN BRI interfaces only.
- ¥ **Lacks Frame Relay support.** Ascend includes Frame Relay support remote office connectivity options.
- ¥ **Lacks robust security.** MAX 2012/2024 includes an integrated dynamic firewall.
- ¥ **Poor expandability.** Supports up to only 8 analog ports, 4 ISDN BRIs. Ascend supports up to 24 ports.
- ¥ **Not scalable.** Lacks MP+ and MultiChassis MP/MP+ support. The Ascend MAX units can be stacked for scalability.
- ¥ **Forced port choice of either ISDN or analog.** Ascend MAX 2012 and 2024 support a full T1/PRI of either analog, or ISDN dial-in.
- ¥ **Lacks Integrated VPN tunneling support.** Ascend MAX supports PPTP and ATMP.
- ¥ **Lacks modem Round-Robin Allocation.** Ascend MAX supports Round-Robin Allocation for maximum modem availability.

USR NETServer 8/16

- ¥ **High cost per port** Ascend wins hands down. Analog cost per port is 50% higher.
- ¥ **Lacks Frame Relay support** (except via external FRAD at an additional cost). The MAX 2012/2024 offers optional Frame Relay software upgrade.
- ¥ **Lacks security options.** No extended RADIUS or integrated firewall. MAX 2012/2024 offers extended RADIUS and an integrated dynamic firewall.
- ¥ **Lacks cross-platform Java configuration utility.** Java configurator included free with every Ascend MAX.
- ¥ **Lacks integrated VPN tunneling** features. Ascend supports PPTP and ATMP.
- ¥ **Not scalable.** Lacks MP+ and MultiChassis MP/MP+ support. The Ascend MAX units can be stacked for scalability.
- ¥ **Lacks modem Round-Robin Allocation.** Ascend MAX supports Round-Robin Allocation for auto-recovery of failed modem.
- ¥ **Incomplete routing support** no AppleTalk routing. Ascend supports IP, IPX and AppleTalk.

Software Specifications

Features

Optional Hybrid Access support for high-speed (56 Kbps) analog modems, ISDN BRI/PRI, T1 and Frame Relay connectivity. Connectivity support for modems, terminal adapters, routers and FRADs.

Bandwidth Management Protocol Support Multilink PPP, MP+, BACP, TCP and STAC data compression

Routing and Bridging Support RIP2, TCP/IP, IPX, AppleTalk, PPP, SLIP, CSLIP, Telnet, ARA, BCP standard bridging and dynamic IP address assignment

Full suite of cost saving client software MAXLink Pro software provides IP stack.

MAXDial Users on the corporate LAN can share the modems in the MAX 2012/2024; eliminates the cost of installing and maintaining separate lines and greater security.

Security Protocol Support PAP, CHAP, MS-CHAP, Ascend Access Control (extended RADIUS), TACACS, TACACS+, token card support, PPP Callback, Calling Line ID.

Secure Access Firewall Ascend's Secure Access Firewall overcomes limitations in traditional static packet filtering technology. Ascend's dynamic firewall opens specific ports for authorized users only when required, and it closes those ports at the end of the session. It also keeps all unused ports closed at all times to prevent hacker access.

MAX Stack allows up to five MAX units to operate as a single logical device by facilitating the negotiation of Bandwidth Allocation Control Protocol (BACP) Multilink PPP (MP) or Multilink Protocol Plus" (MP+) calls across the T1/E1/PRI lines.

Network Management SNMP MIBs, AView, Telnet, VT-100 console management, PPP LQM, Annex-D Frame Relay

Java-based Configurator simplifies setup, configuration and management to get users up in less than 15 minutes.

Benefits

Cost Savings, Network Reliability By eliminating the need for separate modem banks, terminal servers and routers, the MAX saves network equipment and transmission costs. The MAX 2012 and 2024 consolidates a dynamic mix of access lines over high-speed digital trunks.

Bandwidth Management Dial-up connections are automatically set up and torn down for transparent client-server computing across the WAN.

Network Interoperability Robust support for multiprotocol routing, bridging and terminal server functions allows simple dial-in access to corporate resources by authorized users.

MAXLink Pro All IP and IPX LAN users can access resources at a central site or the Internet through the MAX 2012/2024. Once connected, remote users become full-fledged nodes on the LAN with file server, printer, Internet and email access.

MAXDial eliminates the need for analog lines and modems on the desktop dramatically decreasing cost and management supplying dial-in, dial/fax out from the desktop by utilizing the MAX 2012/2024 modem pool. MAXDial also provides a single point of entry and exit to the corporate network dramatically increasing security.

Iron-Clad Security Protect corporate resources with comprehensive, fully integrated security.



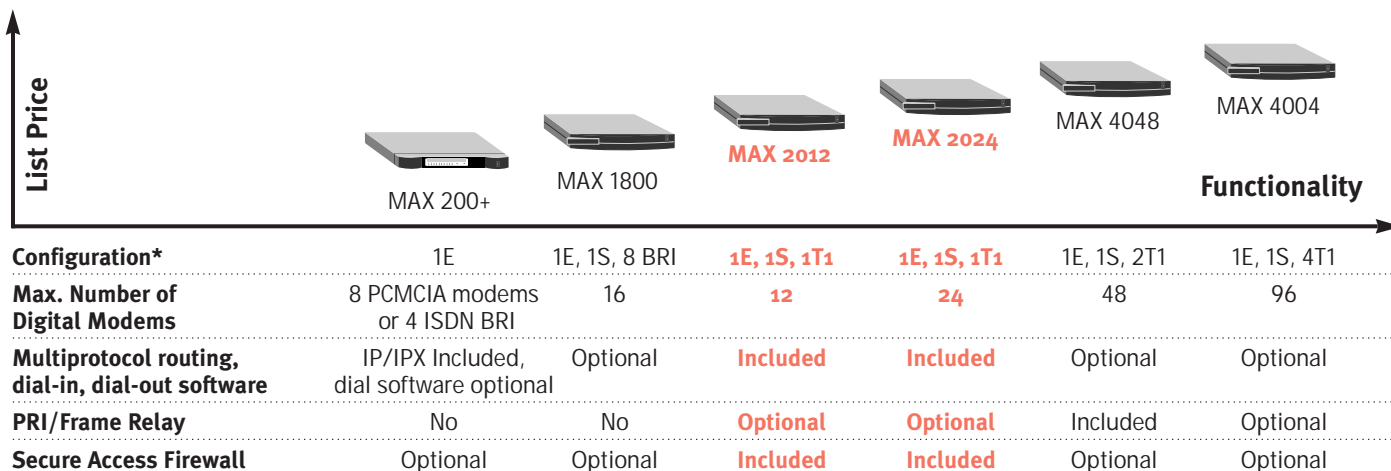
Scalability and Increased Bandwidth as MAX 2012/2024's can be stacked to:

- ¥ Share IP pools across multiple MAX units
- ¥ Expand to 120 modems
- ¥ Span calls across multiple chassis to maximize bandwidth
- ¥ Monitor and manage capacity management through a single, virtual Network Access Switch

End-to End Network Control Integrated features allow network administrators to manage all functions of the MAX 2012/2024.

Easy to configure More margin because of lower installation costs, cross platform and remote management access.

Ascend's MAX Central Site Family



*E-Ethernet, S=High Speed Serial Interface, T1=T1 Interface

Part Numbers-MAX 2012/2024—12/24 Port WAN Access Switch

Part Number	Description	MSRP
MX20-T1-12	MAX 2012 MAX 2012 with T1 interface and integrated CSU, 12 port Digital Modem Secure Access Firewall, MAXDial, MAXLink Pro and Java-based Configurator	\$8,400
MX20-T1-24	MAX 2024 MAX 2024 with T1 interface and integrated CSU, two 12-port Digital Modem, Secure Access Firewall, MAXDial, MAXLink Pro and Java-based Configurator	\$13,920
MX-SL-12MOD-S56	Modem Card 12-port V.34 and K56flex Slotcard	\$5,700
Software Options		
MX20-T1-HA 24	Hybrid Access software option for ISDN/PRI signaling, Frame Relay and digital access	\$1,500
MX-SO-ISDN	Software option ISDN PRI signaling on the network interfaces	\$1,000

Please call your distribution partner for demo, government, and education pricing.

Why Partner with Ascend?

- **Market leadership** enhanced name recognition and credibility with your customers
- **54% dominance of the access concentrator market** (analog & ISDN ports)*
- **84% of total ISP access server ports worldwide**
- **Ensured Internet interoperability** 28 of 30 largest ISPs use the MAX, ensuring end-user compatibility, shortening VAR sales cycle and reducing support demands
- **Technology leadership** more remote access features than any other vendor
- **Complete remote networking solution** with over 60 remote and central site products to fit every need

*Source: Dell' Oro Market Research Group, 1996



Remote Networking
Solutions That Work.™

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