product information

Ascend MAX 1800

Think big but start small with a powerful WAN access solution. The MAX 1800 delivers affordable, state-of-the-art remote networking for your growing business.

Remote Access ▾ Telecommuting ▾ Internet Access

The MAX™ 1800 is a multiprotocol WAN access switch suitable for remote networking applications, including branch office internetworking, telecommuting, mobile connectivity and Internet access. The MAX 1800 handles up to 16 concurrent sessions with integrated access for analog modem, ISDN BRI and Frame Relay users.

A single MAX 1800 replaces separate terminal servers, analog modem banks, ISDN terminal adapters and WAN/LAN routers. It offers a secure, flexible and manageable bandwidth-on-demand solution that is easy to install and operate.

The MAX 1800 shares a common feature set with the other members of Ascend's industry-leading MAX WAN access switch family, so all of the capabilities you need for proven, state-of-the-art remote networking come standard with the MAX 1800.

ASCEND

Networking Solutions for Businesses and Service Providers

Consolidation drives down the total cost of network ownership

By eliminating the need for separate modem banks, terminal servers and routers, the MAX 1800 saves network equipment and transmission costs. With Hybrid Access™, the MAX 1800 consolidates a dynamic mix of user sessions over digital trunks for up to 16 simultaneous connections.

- ISDN BRI (S/T)
- ISDN BRI (U)
- Supports up to 16 digital modems per system

High-speed Series56 Digital Modems enhance performance and reduce operating costs

Integrated high-speed Series56™ Digital Modems provide full access to analog modem callers that dial into the MAX 1800 over the ISDN BRI digital access lines. The MAX 1800 uses either the 8-port or 16-port Digital Modem module to ensure reliability and eliminate the noise, downtime and operating costs that can be present with stand-alone analog modem technology.

- 8-port and 16-port V.34– and K56flex-compatible digital modem expansion module, V.42bis data compression
- K56flex, V.34, V.FC, V.32bis, V.32, V.22, V.22bis, V.21, Bell 212A and Bell 103 compatible
- MNP and MNP10-EC (error correction) for cellular connections
- Group 3 fax support with MAXDial software
- Remote downloadable modem firmware

Hybrid Access delivers state-of-the-art digital service connectivity

Hybrid Access integrates digital sessions via the 8 ISDN BRI interfaces. This standard feature gives users integrated remote networking access for ISDN, as well as for Frame Relay or other network devices that use ISDN or Frame Relay, such as TAs or FRADs.

- 56 or 64 Kbps B-channels for ISDN
- 56 or 64 Kbps Frame Relay
- Up to 16 remote connections

Seamlessly connects to backbone network services over a variety of interfaces

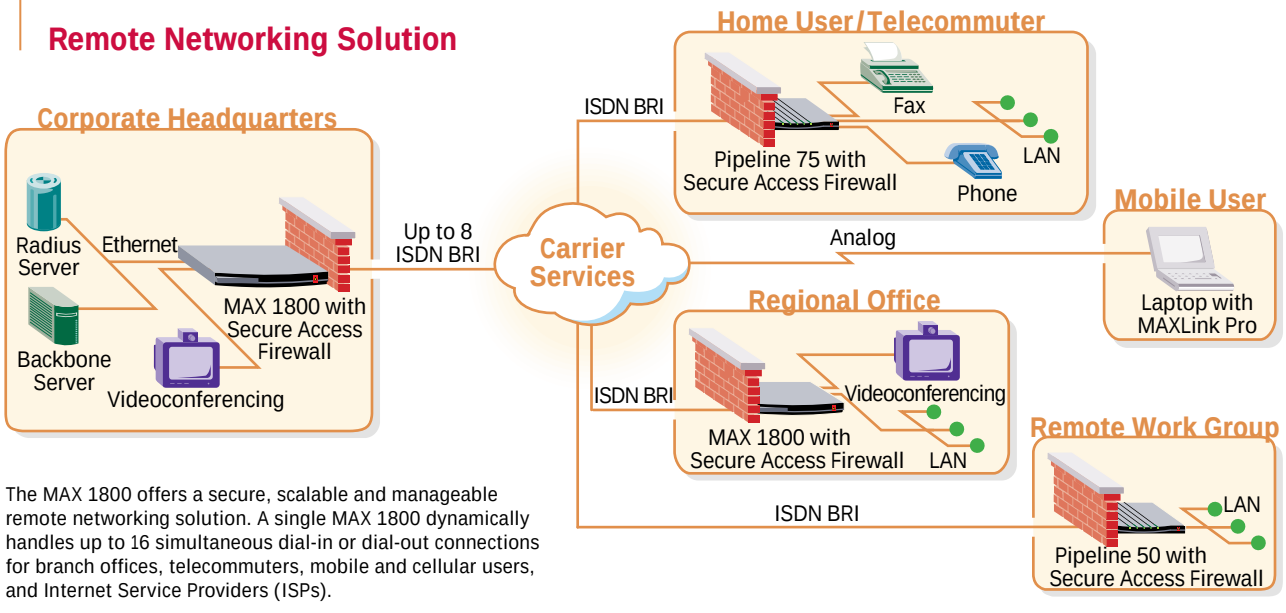
The MAX 1800 provides users with options for connecting into a local or remote backbone network. Users can connect to switches or to backbone routers over any of the following transport options:

- Ethernet (AUI or 10Base-T) port for connecting to the backbone network at up to 10 Mbps
- Frame Relay over a high-speed serial interface port for connections at up to 8 Mbps (V.35, RS449, X.21)
- BRI ports with built-in “S/T” or “U” interfaces for making connections directly with the carrier

Bandwidth on demand maximizes performance and decreases costs

Dial-up connections are automatically set up and torn down for transparent client-server computing across the WAN. Dynamic Bandwidth Allocation™ aggregates multiple calls for greater bandwidth and lower costs.

Remote Networking Solution



The MAX 1800 offers a secure, scalable and manageable remote networking solution. A single MAX 1800 dynamically handles up to 16 simultaneous dial-in or dial-out connections for branch offices, telecommuters, mobile and cellular users, and Internet Service Providers (ISPs).

- Dial-on-demand bandwidth based on packet address
- Increase or decrease bandwidth dynamically during an active session
- 56 Kbps to 4 Mbps selectable bandwidth per call
- Bandwidth is controlled manually, automatically, or by time-of-day profile
- Supports inverse multiplexing protocols: Multilink PPP (MP), Multilink Protocol Plus™ (MP+), BONDING, AIM
- Industry-standard STAC compression
- RFC 1144 TCP header compression

Multiprotocol routing, bridging and terminal server functions ensure network interoperability

Robust support for multiprotocol routing and bridging functions enables users to connect to a variety of resources within corporate networks. The proven technology in routing and terminal server protocols permits service providers to extend their network to offer a broad range of services to users.

- TCP/IP and IPX routed protocols
- RIP, RIP2 and OSPF routing protocols
- Transparent bridging for all other protocols (BCP standard bridging)
- PPP, SLIP and CSLIP terminal service
- Telnet and ARA support
- Dynamic IP address assignment
- V.120 asynchronous rate adaptation
- V.110 asynchronous rate adaptation (optional)

Integrated management features provide end-to-end network control

Manage all functions of the MAX 1800 through your choice of interfaces, either locally or remotely, using intuitive, graphical configuration software.

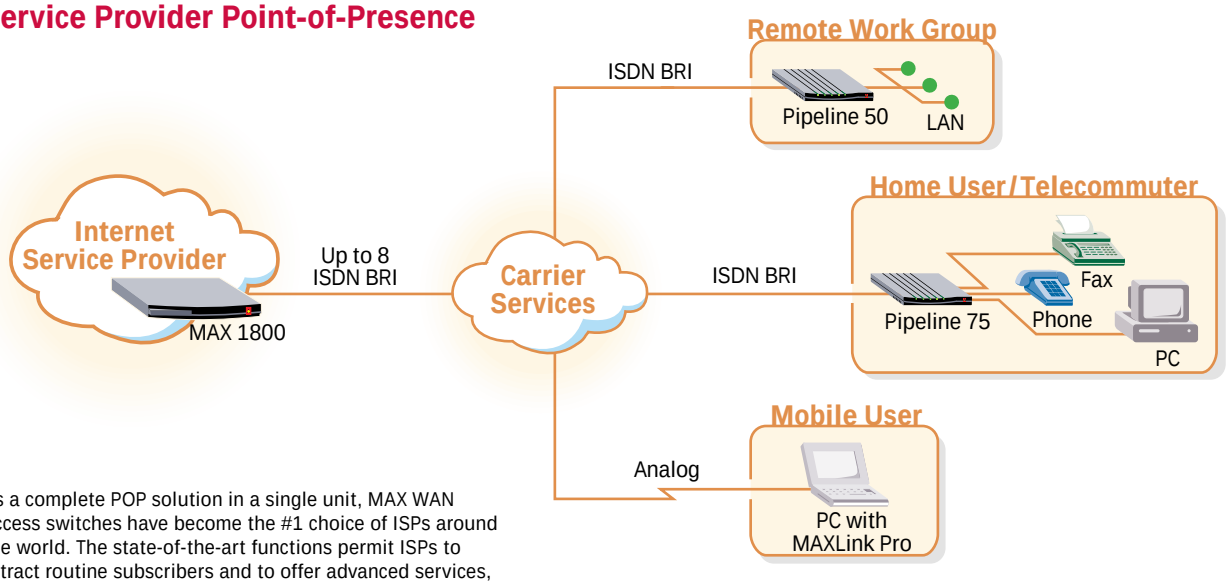
- SNMP MIBs
- Password protected telnet remote management
- Local management via VT-100 terminal
- PPP Link Quality Monitoring (LQM)
- Annex D Frame Relay link monitoring
- FLASH memory for easy software download
- ISDN event log and Syslog support

Expandable bandwidth-on-demand server for high-powered video and data applications

The MAX 1800 has been designed to integrate audio and videoconferencing across the same wide area network interfaces. By utilizing the bandwidth-on-demand technology and the Ascend Inverse Multiplexer (AIM) slot card, users can leverage the existing data network to support videoconferencing between two or more sites.

- Two- and six-port AIM slot cards
- Compatible with Ascend's Multiband inverse multiplexers for greater density and specialized multimedia networks
- Port-to-port local switching
- Up to 16 channels per system
- Call routing by port, group or called number

Service Provider Point-of-Presence



As a complete POP solution in a single unit, MAX WAN access switches have become the #1 choice of ISPs around the world. The state-of-the-art functions permit ISPs to attract routine subscribers and to offer advanced services, such as Virtual Private Networks (VPNs).

Iron-clad Security

Comprehensive security for iron-clad remote networking

Support for standards-based user-authentication systems lets the MAX 1800 fit seamlessly into your current network security architecture. Networked, server-based authentication makes it easy to manage large-scale remote access applications from a central site. Extended RADIUS functionality allows service providers and network managers to integrate the accounting, authentication and authorization capabilities needed to manage their entire remote network.

- PAP, CHAP and MS-CHAP
- Ascend Access Control™ (extended RADIUS), RADIUS, TACACS and TACACS+
- Encrypted token-card security
- Callback (digital connections)
- Calling Line ID (CLID)
- Password-protected terminal server access
- Transmit and receive packet filtering
- Secure Access Firewall (optional)

Protect corporate resources with Ascend's Secure Access Firewall

Ascend's Secure Access™ Firewall is a software option on the MAX 1800 that uses state-of-the-art firewall technology and delivers a comprehensive, fully integrated security solution for corporate networks. Secure Access Firewall allows carriers and ISPs to offer secure services to their customers. It protects your company's information assets at the corporate LAN, remote offices and telecommuters' home offices. The standard security features that are offered on your Ascend remote networking system are integrated with comprehensive security features such as transparency, dynamic firewall, and monitoring and logging.

Secure Access Firewall provides a cost-effective, single-vendor solution for securing your company's remote

Enhanced Software Capabilities

The software for the MAX family allows corporations, carriers and service providers to use the scalable MAX architecture to optimize their networks. The MAX software enhances connectivity by providing a single solution for users with Hybrid Access, ISDN and Frame Relay (optional).

Frame Relay software

Optional Frame Relay software integrates incoming Frame Relay traffic from Ascend's Pipeline and other Frame Relay access devices with analog and digital dial-in traffic. A high-speed synchronous V.35 port connects directly to a Frame Relay switch at data rates up to 8 Mbps.

- Route to multiple Frame Relay PVCs over single or multiple interfaces
- Supports up to 4096 PVCs with RADIUS authentication software
- Dial-in PPP to Frame Relay gateway function with PVC selected on a per-user basis
- RFC1490 encapsulation
- PVC switching
- ANSI Annex D and ITU Annex A management
- Frame Relay Forum UNI and NNI signaling

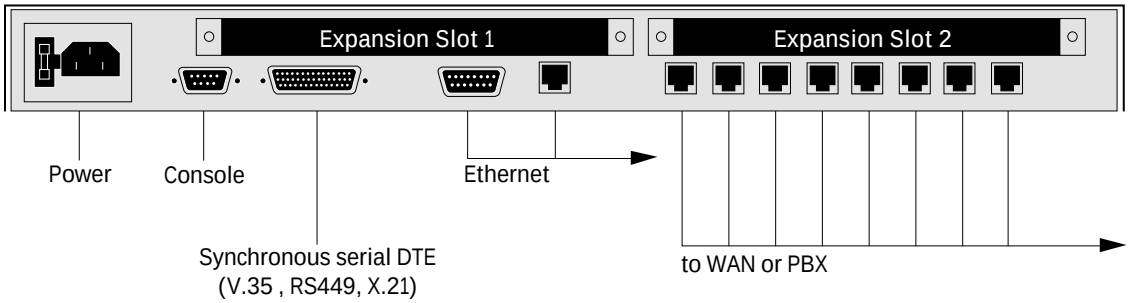
ISDN software

Optional ISDN signaling software supports incoming ISDN signaling from Ascend's Pipeline and MAX products as well as other ISDN access devices. The ISDN signaling supports ISDN connections for analog modem and digital services dial-in traffic.

- BRI with integrated NT1
- D-channel multiplexing
- Frame Relay over ISDN B-channels
- X.25 over ISDN B-channels
- Calling Line Identification (CLID)
- Signaling homologation in over 30 countries worldwide

MAX 1800

MAX 1800 Back Panel



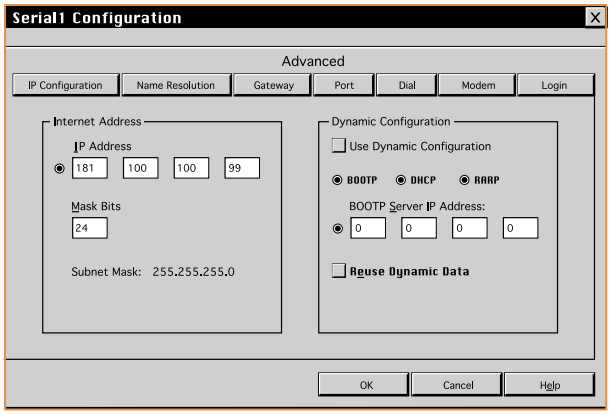
MAXLink Pro and MAXDial Client Software

Client Software

MAXLink Pro™ and MAXDial™ client software are provided with the MAX 1800 at no charge. However, the host software is available as an option.

Use of MAXLink Pro and MAXDial client software assures complete interoperability between users and the MAX 1800 and provides an easy way to add users to your growing network.

MAXLink Pro

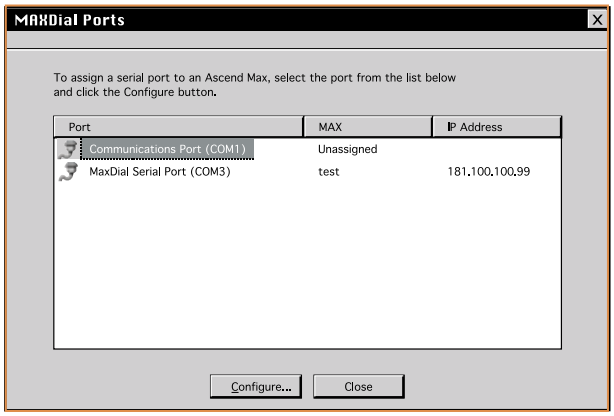


MAXLink Pro software connects remote users with their offices

MAXLink Pro client software runs on a Macintosh or Windows platform, and allows a user to establish a connection to Novell and IP networks. It supports multiple applications including WebSurfer, FTP client, FTP server, TFTP, telnet and includes both a TCP/IP and IPX stack. Through MAXLink Pro, users can do the following:

- Connect to a remote LAN using Macintosh or Windows (95, 3.1x, or NT)
- Access network resources such as file servers, printers and electronic mail
- Define multiple dial-in connections to different LANs while saving them in a list
- Choose the frequency and number of attempts to redial a busy phone line
- Request dial-back from the server

MAXDial



MAXDial software eliminates the need for stand-alone modems

Users on the LAN can access the outside world through MAX 1800 and MAXDial software, which create a "virtual modem" at the desktop. MAXDial eliminates the need to install a direct line and a desktop modem in every office by providing the same functionality without the added expense. The software enables users to dial up modem calls or send out faxes via the modem cards in the MAX 1800.

- Supports AT command set for V.34 modems
- Supports TCP/IP and Novell IPX LANs
- Runs under MS-DOS, Windows 3.x. and Windows 95
- Graphical User Interface (GUI) for easy configuration

Hardware Specifications

Dimensions	1.75 in x 17 in x 12 in [4.5 cm x 43.2 cm x 30.5 cm]
Weight	10 lbs [4.6 kg]
LAN Interface	Ethernet 10Base-T via RJ-45 jack Ethernet AUI via DB-15 connector
WAN Interfaces	8 ISDN BRI, serial port (V.35, RS449, X.21)
Software Upgrade	Via built-in flash RAM, remote downloadable
Power Requirements	80 watts, 47-63 Hz, 90-240 VAC, 270 BTU/hour
Operating Requirements	Temperature: 32-104˚F [0-40˚C] Altitude: 0-14,800 feet [0-4,500 meters] Relative Humidity: 5-90% (noncondensing)
Safety Certifications	CSA 950, NTRL/UL 1950, TUV EN 60 950
EMI/RF	FCC Part 15, EN55022B, EN50082-1, VCCI

Software Specifications

LAN Protocols Supported	TCP/IP, IPX
Routing Protocols Supported	AppleTalk, BCP Bridging, RIP, RIP2, OSPF (IP only) IGMP multicast forwarding
WAN Protocols Supported	PPP, ARAP, SLIP, C-SLIP, Async PPP, Sync PPP, V.110 Async, HDLC, ARA, Async IPX, X.25 PAD, X.25 over B-channel, V.120, Frame Relay PVC, Hybrid Access, PPP-FR gateway, BONDING, AIM, FR NNI, Annex A, Annex D
Modem	K56flex, V.34 and below, MNP 10-EC, MNP, V.42bis, fax modem send up to 14.4 Kbps
Multimedia/ Inverse Multiplexing	BONDING, local port to port switching, 56 or 64 Kbps adaption, AIM
Bandwidth Management	Multilink PPP, Multilink Protocol Plus, TCP, header compression, data compression (Ascend/Microsoft/STAC V9), AppleTalk Remote Access, compatible with ARA 1.0 and 2.0
Security	Secure Access Firewall, Ascend Access Control (extended RADIUS), RADIUS, TACACS+, Password Authentication Protocol (PAP), Challenge Authentication Protocol (CHAP), token card, Calling Line ID (CLID), packet filtering, SNMP, console management (VT-100), PPP callback, user authentication
Management	Console management software (runs on Windows 95 and Windows 3.x), telnet, NASI, SNMP II, PPP LQM, Frame Relay Annex D, Frame Relay ITU Annex A, Frame Relay ANSI Annex D
Client Software	MAXLink Pro client software MAXDial client software

Ascend's Series56
Digital Modems are based on
K56flex technology.

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Ascend Communications, Inc. is a leading, worldwide provider of remote networking solutions for corporate central sites, Internet Service Providers' points of presence, remote offices, mobile workers, and telecommuters. Ascend develops, manufactures, markets, sells and supports products which utilize bandwidth on demand to extend existing corporate networks for applications such as remote LAN access, Internet access, telecommuting, SOHO connectivity and video-conferencing/multimedia access. Detailed information on Ascend products, news announcements, seminars, service and support is available on Ascend's home page at the World Wide Web site: http://www.ascend.com.

Ascend markets the GRF, MAX, Multiband, MultiDSL, Pipeline, NetWarp and Security families of products. Ascend products are available in more than 30 countries worldwide.

Specifications are subject to change without notice.

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Remote Networking Solutions That Work.™

ISO 9001 REGISTERED