product information

Ascend

# Series56 Digital Modem Module

Ascend's Series56™ Digital Modem module offers corporations, ISPs and network service providers industry-leading access performance and increased flexibility and extensibility. By incorporating the K56flex specification, these modules let subscribers use either V.34bis- or K56flex-compatible modems to download data from a corporate office or the Internet at speeds up to 56 Kbps.

These modules can be integrated into central site MAX™ and MAX TNT™ WAN access switches and are available in 8-, 12- and 16-port modules for the MAX and 48-port modules for the MAX TNT. By installing these V.34bis and K56flex-compatible Digital Modem modules, service providers can be assured that downstream calls travel to the local loop in pure digital format over an ISDN PRI or trunk-side T1/E1 line.

## Support for wide range of modem modes ensures connectivity

The Series56 Digital Modems offer users dialing in on both analog and cellular lines support for all of the standard modem modes. With this technology, users can achieve a maximum of 56 Kbps on the downstream portion of a call and 33.6 Kbps on the upstream portion. Support for error correction and data compression maximizes data transfer integrity and boosts data throughput.

- Support for data modem modes: K56flex, V.34bis, V.34, V.32bis, V.22bis, V.22 and below
- Support for error correction and data compression: V.42 LAPM, MNP2-4, MNP 10 error correction; V.42bis and MNP 5 data compression
- MNP 10EC f0r enhanced cellular performance

## Software-upgradable technology protects investment and offers long-term hardware viability

The Series56 modems take advantage of the new high-speed 56 Kbps modem standards and build on the industry-leading MAX and MAX TNT product lines. These V.34bis- and K56flex-compatible modems are fully software upgradable, providing customers with increased modem and network performance as well as on-going compatibility with modem standards.

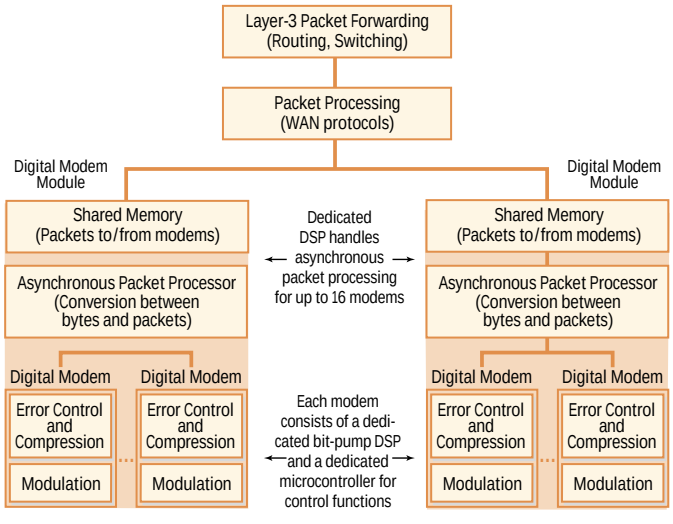
- Future upgrades via software update
- Modems can be upgraded either locally or remotely using integrated management features
- In-service upgrades can be made without interrupting user operations

## Hierarchical DSP-based architecture delivers high-speed digital connections

Each Series56 Digital Modem module features an enhanced architecture that dedicates a Digital Signal Processor (DSP) to efficiently handle the task of packetizing and aggregating incoming byte streams as well as converting packets to bytes for outgoing traffic. This significantly offloads the central processor of the MAX, allowing it to focus on other tasks like packet forwarding and routing.

- Dedicated DSP for each module for asynchronous packet processing
- Each modem has a dedicated DSP for bit handling and a microcontroller for control functions
- Series56 Digital Modems process the call as purely digital through the carrier's central office

### Series56 Digital Modem Architecture




ASCEND

## Features

| | |
|---|---|
| Data Modem Modes | K56flex, upgradable to ITU-T 56 Kbps, V.34bis, V.34, V.32bis, V.32, V.22bis, V.22A/B, V.23, and V.21; Bell 212A and 103 |
| Internal Error | V.42 LAPM, MNP 2-4 AND MNP 10 error correction |
| Correction /Data Compression | V.42bis, and MNP 5 data compression |
| Cellular | MNP10EC enhanced cellular performance |
| Fax Modem | 14.4 Kbps transfer rate<br>V.33, V.17, V.29, V.27ter and V.21, channel 2<br>Group 3, T-20 protocol and Class 1 and 2 |
| Line Speeds | Up to 56 Kbps |
| Software Upgrade | Via uploadable modem code |
| Multiprotocol Functionality | IP/IPX, PPP, MP, Multilink Protocol Plus (MP+), AppleTalk, BACP |
| Authentication TACACS+ | Ascend Access Control (RADIUS), TACACS, |
| Security | Secure Access Firewall, PAP, CHAP, Callback, CLID, token card |

## Specifications

| | |
|---|---|
| Transfer Rate | 56 Kbps downstream/33.6 Kbps upstream |
| Interfaces Per Card | 8, 12, 16 and 48 |
| Card Dimensions | 5.6 in x .8 in x10.7 in long [14.2 cm x 27 cm] for MAX 1800, 20xx, 40xx<br>11 in x 1.6 x 8.75 in long [27.9 cm x 4.1 cm x 22 cm] for MAX TNT |
| Interfaces per card | MAX 1800: 8-, 12- or 16-port modules<br>MAX 20xx and 40xx: 12- or 16-port modules<br>MAX TNT: 48-port modules |
| Card Weight | ~ 2 lbs [.9 kg] for MAX 1800, 20xx, 40xx<br>~ 3 lbs [1.37 kg] for MAX TNT |
| Hot-Swap Capability | Available on MAX TNT |
| Operating Requirements | Temperature: 32-104°F [0-40°C]<br>Relative Humidity: 10-90% (non-condensing) |

K56 FLEX

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

ISO 9001 REGISTERED


## Ascend Communications, Inc.

### Worldwide and North American Headquarters
One Ascend Plaza
1701 Harbor Bay Parkway
Alameda, CA 94502, United States
Tel: 510.769.6001
Fax: 510.747.2300
E-mail: info@ascend.com
Toll Free: 800.621.9578
Fax Server: 415.688.4343
Web Site: http://www.ascend.com

### European Headquarters
Rosemount House
Rosemount Avenue, West Byfleet
Surrey KT14 6NP, United Kingdom
Tel: +44 (0) 1932.350.115
Fax: +44 (0) 1932.350.199

### Japan Headquarters
Level 19 Shinjuku Daiichi-Seimei Bldg.
2-7-1 Nishi-Shinjuku
Shinjuku-ku, Tokyo 163-07, Japan
Tel: +81.3.5325.7397
Fax: +81.3.5325.7399
Web Site: http://www.ascend.co.jp

### Asia-Pacific Headquarters
Suite 1419, Central Building
1 Pedder Street
Central, Hong Kong
Tel: +852.2844.7600
Fax: +852.2810.0298

### Latin, South America and the Caribbean Headquarters
One Ascend Plaza
1701 Harbor Bay Parkway
Alameda, CA 94502, United States
Tel: 510.769.6001
Fax: 510.747.2669


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 videoconferencing/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.




01-46
04-97


ASCEND

**Remote Networking Solutions That Work.™**