

Ascend

Ascend MAX Line vs. Bay Networks 5000 MSX

Brief Description: Bay Networks 5000 MSX System

The System 5000 Multiservice Access Switch (MSX) is the same product as Bay Networks System 5000 intelligent switching hub, with 4 modules available for remote access needs: Remote Annex/Asynch (5390), Remote Annex/CT1 (5391), Remote Annex/PRI (5393) and the new Remote Access Concentrator (5399). These modules can be integrated with other routing, switching and bridging modules on the System 5000 Intelligent Hub.

The 5399 Module (introduced spring/summer '97) includes the embedded DSP software obtained through Bay's acquisition of Penril's DSP technology. While the DMs only support V.34 today, they are software upgradeable to 56K (K56flex) when Bay releases it.

The 5000 MSX is available as a 14-slot chassis, or an 8-slot chassis (model 5005) — one slot is reserved for the Supervisory (Controller) module and another slot reserved for the Management module. It supports Ethernet, Token Ring, FDDI and ATM connectivity. Four 5000 MSX Chassis comprise a Telco rack.

The 5000 MSX slots support the dial access modules described below:

- Remote Annex/Asynch (5390)
 - 24 asynch ports per module
 - 288 asynch calls per chassis
- Remote Annex/CT1 (5391)
 - Supports one Channelized T1 and 8,16 or 24 digital modems per module (E1 version is also available)
 - Up to 6 CTI modules per chassis with a maximum 144 concurrent calls per chassis
- Remote Annex/PRI (5393)
 - Supports one PRI, and up to 23 analog/ISDN concurrent sessions per module (30 concurrent sessions in E1 version)
 - Up to 12 PRI modules per chassis with a maximum 276-360 concurrent ISDN sessions per chassis
- Remote Access Concentrator (5399)
 - T1 version supports 48 digital modems or 2 channelized T1/PRI interfaces per module, 576 sessions per chassis, 2,304 sessions per Telco rack
 - E1 version supports 62 digital modems or 2 channelized E1/PRI interfaces per module, 744 sessions per chassis, 2,880 per Telco rack

U.S. List Pricing

5000 MSX chassis	\$4,995
Single slot PRI/24 modem card	\$9,995 (for 5393)
Dual slot PRI/48 modem card	\$19,995 (for 5399)
Optivity software	\$5-16,000



Ascend MAX™ line Competitive Advantages — “The Silver Bullets”

- High degree of scalability and flexibility: Ascend is the leader in providing scalable and flexible access concentrator solutions. The MAX line (including the MAX TNT™) provides scalable and flexible configurations from 8 to 672 modems per box. The MAX line supports from 4 (MAX 400X) to 150 (MAX TNT) T1/E1 lines. The MAX TNT supports T3 as well as ISDN, XDSL and Frame Relay.
- High density: Ascend's MAX line can integrate up to a maximum of 672 ISDN sessions per shelf, or 4,032 ISDN or Frame Relay connections per Telco rack — nearly twice the capacity of the MSX 5399 module.
- Most comprehensive set of security features including fully integrated, dynamic firewall capability and extended RADIUS dictionary (over 120 enhancements)
- Guaranteed interoperability with a wide number of modem manufacturers and carrier networks including carriers in over 36 countries
- End-to-end network management: Ascend's NetClarity™ is a multi-vendor solution that provides total POP management — designed specifically for ISPs, carriers and corporations to support a variety of network access services and devices. NetClarity provides discovery and mapping, configuration management, performance measurement and fault monitoring functionality to provide a customized view of the network as a whole, or device by device.
- Proven track record and investment protection: Ascend has the largest installed base of integrated access switches and has been shipping high density access concentrators for over three years. Ascend has installed over 2 million digital ports and over 1.5 million digital modems worldwide. Customers can be assured of investment protection because of Ascend's commitment to developing scalable, compatible and high performance platform solutions.
- Support for a complete set of WAN access protocols: Switched 56, DDS 56, T1/FT1, E1, ISDN BRI and PRI and Frame Relay
- MP+ and Multi-chassis MP/MP+/BACP support: With the introduction of MAX Stack, a feature which maximizes bandwidth availability by enabling multiple MAX WAN access switches to function together as one logical switch for MP/MP+/BACP calls, Ascend has clearly established itself as the only remote access vendor providing comprehensive bandwidth management features. For example, a single incoming MP call that requests greater bandwidth is given additional unused channels anywhere in the stack. MAX Stack reduces the complexity and increases the simplicity of provisioning access to multiple central site WAN access switches.
- High speed modem support: Today the MAX line offers new Series56™ Digital Modem and xDSL support (IDSL on the MAX 400X platform and MultiDSL™ (IDSL, SDSL, RADSL) support on the MAX TNT) for ISPs and enterprises that want to offer their users the widest available access options and upgrade paths.
- Low Price/High Value: The MAX line now includes low cost products that are bundled with leading-edge security protocols and management capabilities to offer higher functionality at more competitive prices.

Any feedback or suggestions are most welcome. This bulletin will be updated regularly. Also, please send any pertinent competitive information from the field to the attention of the Competitive Marketing group in Alameda (x72081).

Comparison of Key Features — Ascend MAX Line vs. Bay 5000 MSX

Feature	MAX 20XX	MAX 40XX	MAX TNT	Bay 5000 MSX	
				5393	5399
U.S. List Price					
Base chassis	\$6,500	\$11-\$15,500	\$18,750	\$4,995	\$4,995
Max. modems/box	24	8 to 96	288	24	576
Price/modem	\$746	\$542-\$750	\$697	\$452	\$416
Max. PRI/box	1	2 to 4	28	12	24
Concurrent sessions/box	12 to 24	48 to 96	672	276	576

Feature	MAX 20XX	MAX 40XX	MAX TNT	Bay 5000 MSX 5393 and 5399
WAN Connectivity/Bandwidth Management				
T1	Yes	Yes	Yes	Yes
V.34	Yes	Yes	Yes	Yes
ISDN BRI	Yes	Yes	No	No
ISDN PRI	Yes	Yes	Yes	Yes
PPP	Yes	Yes	Yes	Yes
Frame Relay	Yes	Yes	Yes	No
AppleTalk remote access	Yes	Yes	Yes	Yes
Multilink Protocol (MP)	Yes	Yes	Yes	Yes
Multilink Protocol Plus™ (MP+)	Yes	Yes	Yes	No
Hardware data compression	Yes	Yes	Yes	No
Multi-Chassis MP	Yes	Yes	Yes	No
Multi-Chassis MP+	Yes	Yes	Yes	No
Security				
PAP/CHAP	Yes	Yes	Yes	Yes
TACACS & TACACS+	Yes	Yes	Yes	No
Dynamic firewall	Yes	Yes	Yes	No
RADIUS	Yes	Yes	Yes	Yes
Extended RADIUS	Yes	Yes	Yes	No
Integrated firewall	Yes	Yes	Yes	No
CLID	Yes	Yes	Yes	No
VPN Tunneling support	Yes	Yes	Yes	Yes
Network Management				
Full SNMP MIB support	Yes	Yes	Yes	Yes
Total network (multi-device) management	Yes	Yes	Yes	No
Multi-vendor router/switch support	Yes	Yes	Yes	No
QoS reporting	Yes	Yes	Yes	No
Multi-vendor router/switch support	Yes	Yes	Yes	No
Routed/Routing Protocol Support				
IP	Yes	Yes	Yes	Yes
IPX	Yes	Yes	Yes	Yes
OSPF	Yes	Yes	Yes	No
RIP 2	Yes	Yes	Yes	Yes

Feature	MAX 20XX	MAX 40XX	MAX TNT	Bay 5000 MSX 5393 and 5399
Server Functions				
STAC compression	Yes	Yes	Yes	No
Terminal server	Yes	Yes	Yes	Yes
FAX out	Yes	Yes	Yes	No
Remote software download	Yes	Yes	Yes	Yes
LAN to LAN	Yes	Yes	Yes	Yes
Carrier Support				
Redundant power supply	Yes	Yes	No	Yes
Cellular service support	Yes	Yes	Yes	No
DSL Support				
	No	IDSL	IDSL, SDSL	No RADSL
Open 56K Support				
	Yes	Yes	Yes	Promised in '97

Selling against Bay 5000 MSX

Major Weaknesses of the Bay Networks System MSX 5000 — “The knock-offs”

- Bay has no track record with high-end access switches and has limited ISP/Carrier experience — the MSX5399 with Penril digital modems is new to market with no track record.
- Confusing product offering: many remote access and other modules for the 5000 MSX chassis makes specific application needs/fit unclear.
- Separate access lines for T1 and PRI: The MAX line products have a single access line for T1/E1 and PRI.
- Limited WAN connectivity: No support for ISDN BRI, Frame Relay, or T3
- Limited Carrier Network support: No PRI to T1 signaling conversion and D4 to ESF conversion
- No bonding of B-channels between multiple modules or chassis
- Limited security: No dynamic, integrated firewall capability (supports stand-alone firewall and static filters only), no TACACS/TACACS+, no CLID, no extended RADIUS
- No end-to-end multi-device/multi-vendor network management: Limited management capabilities are single device only and Optivity software is premium priced (can add to the per port cost by up to \$300)
- No support for DSL technology
- Late with 56K support

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