PRODUCT INFORMATION

Ascend

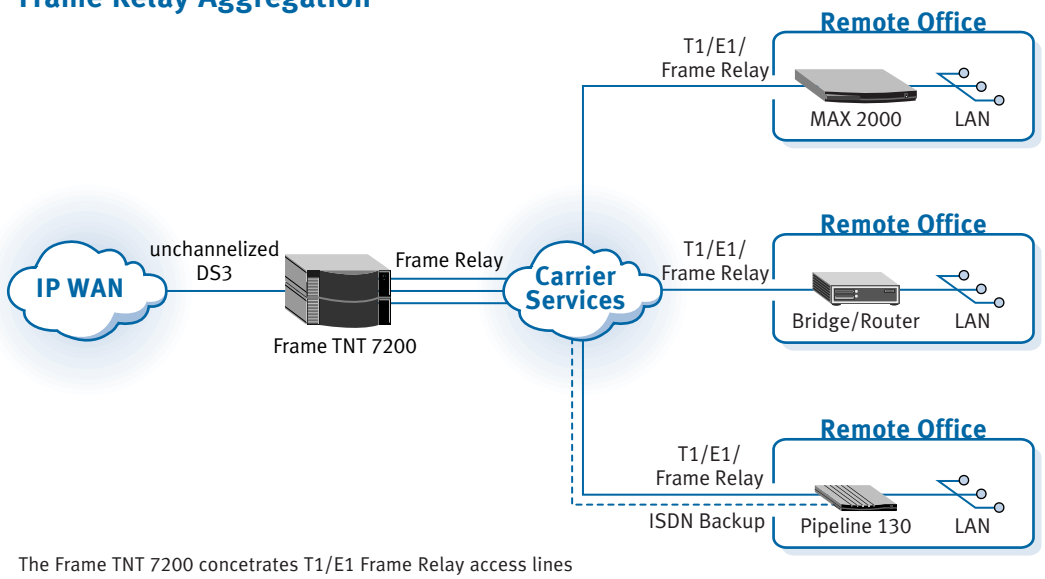
Frame TNT 7200 Series



The Frame TNT 7200 is a fully integrated, high-density WAN access switch optimized for Frame Relay applications and designed primarily for small- to mid-sized Internet Service Providers (ISPs), Competitive Local Exchange Carriers (CLECs) and other service providers. Based on Ascend's True Access™ Operating System (TAOS), the Frame TNT 7200 offers service providers a single system solution for providing Frame Relay access to thousands of remote users. This highly scalable, fault-tolerant Frame Relay access termination and aggregation platform leverages the industry-leading, high-density WAN access switching capabilities of the MAX TNT™. Integrating the FrameLine™, Hybrid Access™ and T1/PRI/E1 modules, the Frame TNT 7200 creates a powerful and cost-effective Frame Relay solution.

With its high port density and integrated modular enhancements, the Frame TNT 7200 helps service providers reduce network costs while optimizing performance. Service providers can use the Frame TNT 7200 to aggregate customer Frame Relay traffic, allowing them to support more users without making costly additions to their network infrastructure. This also helps service providers reduce recurring line charges, use fewer V.35 or high-speed interface cards on their routers and increase the scalability of their network, handling more customers for the same investment. And, with the Frame TNT 7200's modular architecture, service providers can customize their network infrastructure according to specific application and bandwidth requirements. Other features, such as centralized management through NavisAccess™ network and service management software, hot-swappable line cards, optional redundant load-sharing power supplies and low power consumption make the Frame TNT 7200 the most cost-effective, value-added solution available.

Frame Relay Aggregation



The Frame TNT 7200 concetrates T1/E1 Frame Relay access lines into a high-speed unchannelized DS3 network port on the service provider's Frame Relay backbone.

Cost-effective Frame Relay Solution for Small-to-Mid-sized Service Providers

Advanced architecture and Frame Relay capabilities ensure industry-leading performance

The Frame TNT 7200 is designed with multiple high-speed RISC CPUs, distributed processing support, route caches on every expansion module and high capacity and multi-access speed support. The Frame TNT 7200 gives service providers easy entry into Frame Relay aggregation with its integrated modules and Frame Relay software.

- Route to multiple Frame Relay PVCs over single or multiple interfaces
- RFC 1490 encapsulation
- Frame Relay forum UNI and NNI PVC switching

Flexible solution provides seamless connectivity between remote users and backbone network services

The Frame TNT 7200 supports a dynamic mix of interfaces to optimize design for each service and tariff environment. Users can connect to backbone switches or routers over any of the following transport options:

- Unchannelized T1/E1, Fractional T1/E1, Frame Relay
- Channelized T1/PRI ports with integrated CSU
- Channelized E1/PRI ports
- Channelized DS3/Unchannelized DS3
- Ethernet (AUI, 10Base-T, 100Base-T)

Integrated modules provide complete, cost-effective solution

With the Frame TNT 7200's integrated modules, service providers can cost-effectively aggregate customer traffic by providing a single, high-utilization interface supporting a number of different customers.

- FrameLine modules terminate up to 150 T1/E1 or FT1 Frame Relay connections per system
- Hybrid Access modules can connect up to 720 Frame Relay devices per system
- T1/PRI/E1 modules have eight routed T1/E1 interfaces with a built in CSU for every port

Reliable hardware and software design assures system availability

Because downtime is not an option for your network, the Frame TNT 7200 is designed for continuous operation. The Frame TNT 7200 offers a full range of management features that enable network managers to administer and maintain system performance without interrupting user operations.

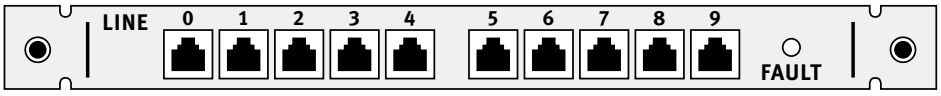
- NEBS Level-3 compliant
- Redundant, hot-swappable, load balancing power supplies on each shelf
- Hot-swappable modules with external indicator lamps for fault isolation
- Software upgrade via built-in flash RAM, remote downloadable

Integrated management features provide end-to-end network control

Manage all functions on the Frame TNT 7200 through your choice of interface, either locally or remotely, using graphical configuration software.

- NavisAccess™ network management software for extensive and complete control of all devices, components and services
- 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
- Command line interface or graphical user interface using NavisConnect™

FrameLine (Frame Relay) module back panel



The FrameLine module supports 10 unchannelized T1 ports and integrated HDLC controllers.

Frame TNT 7200 Modules

The Frame TNT 7200 has a scalable, modular card and back-plane architecture that provides intelligent access for applications to global network services. The modular card system lets users design a solution that satisfies the specific application and bandwidth requirements of any customer. The back-plane is comprised of three distinct buses: Cell, TDM and Packet. A single shelf supports up to 16 modules and redundant, load-balancing power supplies.

FrameLine Module

The FrameLine™ module supports 10 unchannelized T1 ports and integrated HDLC controllers so that it can provide the complete Frame Relay solution in a single module.

- Supports 10 ports per module, or up to 150 ports per Frame TNT 7200 shelf
- Supports both UNI and NNI interfaces

Hybrid Access Module

Hybrid Access provides users with integrated, remote networking support for digital sessions via Frame Relay. These sessions can be accessed with any network device that works with Frame Relay such as Terminal Adapters (TAs), Frame Relay Access Devices (FRADs) and any Pipeline® or MAX™ product. Each Hybrid Access module supports multiple remote 56/64 Frame Relay sessions.

T1/PRI/E1 Module

The T1/PRI/E1 module has eight routed T1/E1 interfaces with a built in CSU for every port. Up to four T1 modules can be used in a single Frame TNT 7200 shelf for a total of up to 24 ports.

- Supports eight interfaces per port
- Maximum of four modules per shelf/system

T1/PRI/E1 module back panel



The T1/PRI/E1 module has eight routed T1/E1 interfaces with a built-in CSU for every port.

Hybrid Access HDLC module back panel



Each Hybrid Access module supports multiple remote 56/64 Frame Relay sessions.

Hardware Specifications

Dimensions	14 in x 17.4 in x 11.5 in [35.6 cm x 44.2 cm x 29.2 cm]
Weight	130 lbs [59 kg] fully loaded (single power supply) 27.2 lbs [12.3 kg] empty (no power supply)
LAN Interface	Ethernet 10Base-T, 100Base-T
WAN Interfaces	DS3, T1/E1, Serial (V.35, RS-449, X.21)
Software Upgrade	Via built-in flash RAM, remote downloadable
Power Requirements	800 Watts, 47–63 HZ, 90–240 VAC, -40 to -60 VDC
Operating Requirements	Temperature: 32°–104°F [0°–40°C] Altitude: 0–14,800 feet [0–4,500 meters] Relative Humidity: 0–90% (non-condensing)
Safety Certifications	CSA 950, NTRL/UL 1950, TUV EN 60 950
EMI/RFE	FCC Part 68, FCC Part 15, E55081-1, EN50082-1, EN55022B

Software Specifications

Protocols Supported	TCP/IP, IPX, AppleTalk, RIP, RIP2, OSPF, IGMP multicast forwarding
WAN Protocols Supported	PPP, Async PPP, Sync PPP, HDLC, ARA, Async IPX, D4 Framing (T1/E1), G703/732 framing (R1), Frame Relay PVC PPP-FR-gateway, FR NNI, FR UNI
Bandwidth Management	Multilink PPP, Multilink Protocol Plus TCP Header Compression Data Compression (Ascend/Microsoft/STAC V9)
Security	RADIUS, TACACS, TACACS+, Ascend Access Control (extended RADIUS), Password Authentication Protocol (PAP) Challenge Authentication Protocol (CHAP) token card, CLID, packet filtering, SNMP, console management (VT-100), user authentication
Management	Console management software (Runs on Windows 95 and Windows 3.x), Telnet, NASI, SNMP II, NavisAccess network management software, NavisConnect configuration

FrameLine Module Specifications

Transfer Rate	1.544 Mbps +/- 32ppm
Transmission Distance	Standard
Connector Requirements	RJ-45
Interfaces per Card	10 RJ-45 (100 ohm line)
Max. number of modules per shelf/system[2]	15[1]/15[1]

Hybrid Access (HDLC) Module Specifications

Interfaces per Card	No external interfaces
Max. number of modules per shelf/system[2]	4/4

T1/PRI/E1 Module Specifications

Transfer Rate	1.544 Mbps, 24 DSOs (2.048 Mbps, 32 DSOs Europe/Asia)
Transmission Distance	Standard
Connector Requirements	RJ-45 (120 ohm RJ-45, 75 ohm Coax Europe/Asia)
Interfaces per Card	8 x RJ-45 (8 x RJ-45, 8 x BNC Europe/Asia)
Max. Number of modules	4[1]/4[1] per shelf/system[2]

Configurations

Frame TNT 7215	Frame TNT 7200 chassis with AC power supply and shelf controller 10/100Base-T Ethernet module Channelized 8-Port T1 module Single-slot Hybrid Access module 10-Port FrameLine (Frame Relay) module

[1] Maximum of 28 T1s/E1s per Frame TNT 7200 system

[2] A single Frame TNT 7200 chassis is referred to as a shelf. A system can be made up of three shelves.

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Ascend Communications, Inc. develops, manufactures and sells wide area networking solutions for telecommunications carriers, Internet service providers, and corporate customers worldwide. For more information about Ascend and its products, please visit the Ascend Web site at http://www.ascend.com, or e-mail info@ascend.com.

Ascend markets the B-STDX, CBX, GRF, GX, IP, MAX, Multiband, MultiDSL, Navis, Pipeline, SA, SecureConnect and STDX families of products. Ascend products are available in more than 40 countries worldwide.

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