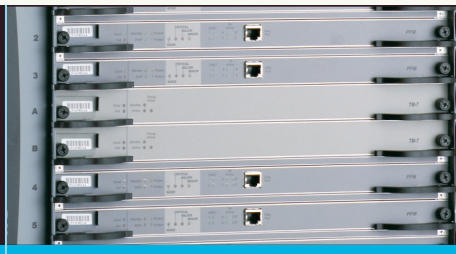
ciena

Data Sheet

DN 7000™ Series

Multiservice Edge Switching and Aggregation Platform



CIENA'S DN 7000 SERIES MULTISERVICE EDGE PRODUCTS OFFER A WIDE SPECTRUM OF COST-EFFECTIVE ETHERNET- AND IP/MPLS-BASED SERVICE DELIVERY, from modern data-aware access networks to the edge of the IP/MPLS core.

With the DN 7000 series, service providers can deploy solutions appropriate to customer demand and service area density at a lower cost than any other product on the market today. The DN 7000 series delivers Ethernet, IP/MPLS, ATM, Frame Relay, and TDM aggregation and switching on a single platform, so service providers can facilitate the convergence of new and existing services and networks onto Ethernet- and IP/MPLS-based architectures while protecting their current Layer 2 investments.

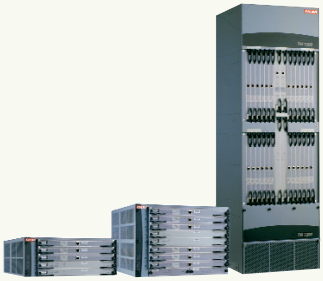
THE DN 7000 SERIES IS HIGHLY RELIABLE, SCALABLE, AND COST-EFFECTIVE. It delivers six-9s reliability through its telephony-grade operating system, enabling in-service software upgrades and downgrades without disruption. It features industry-leading scalability via significant increases in port, Pseudowire Emulation Edge-to-Edge (PWE3), Virtual Circuit (VC), and Label-Switched Path (LSP) densities and processing power. The series' compact design minimizes space and power requirements by consolidating multiservice switching onto a single chassis rather than deploying multiple products, thus reducing continuing costs and deployment to provide substantial capital and operations savings.

THE DN 7000 SERIES ENABLES MIGRATION TO ETHERNET AND IP/MPLS with advanced Ethernet interworking and multiservice pseudowires. Service providers can expand their addressable market, reach and availability for Ethernet by utilizing advanced Ethernet service and network interworking with traditional Layer 2 customers and networks. In addition, the DN 7000 series' multiservice pseudowires facilitate convergence by enabling new Ethernet service delivery and seamless Frame Relay, ATM and TDM migration onto an IP/MPLS core.

The three models of the DN 7000 series share common hardware and software, decreasing sparing requirements and simplifying system operation and management. Through software-only configuration and dual control planes (MPLS and/or ATM), the series' multiservice interfaces can be independently provisioned to run in Ethernet, IP/MPLS, and/or ATM modes. The DN 7000 series supports a wide variety of interface types that scale from DS0 to OC-48/STM-16 as well as 10/100 and Gigabit Ethernet speeds.

FEATURES & BENEFITS

- Delivers 99.9999 percent carrier-class reliability to improve service level agreements and customer satisfaction
- Processes any service on any port, allowing faster service delivery, reduced capital expenditures and ease of sparing
- Features a small footprint, which reduces operations expenses
- Offers industry-leading port density and granular scalability from 2.5 Gb/s to 40 Gb/s
- Provides industry-proven inter-operability with existing service provider Operations Support Systems (OSSs) and practices
- Supports high subscriber-density and traffic volumes, processing up to 128,000 pseudowires, VCs or LSPs per port, and up to 800 calls-per-second per module
- Enables rapid provisioning, monitoring, troubleshooting and standards-based OSS integration through Ciena's ON-Center DN 7000 Manager



The DN 7000 series addresses the requirements of Triple Play aggregation, business data services and fixed/mobile convergence applications including:

» Layer 2 MPLS VPNs using pseudowires (Ethernet, TDM, Frame Relay, and ATM)

» Any-to-Any Ethernet service and network interworking with Frame Relay and ATM

» Converged 2G/3G mobile voice and data radio-access networks via TDM, ATM and/or pseudowire-based backhaul

» Gigabit Ethernet and/or ATM-based broadband services aggregation (DSL/FTTx)

Technical Information

CAPACITY AND SUBSCRIBER DENSITIES

Model	Forwarding Modules	Port Adapters	VCs (Ethernet, FR, ATM) / LSPs / PWE3
DN 7050	3 slots	4 full or 8 half slots	256,000
DN 7100	6 slots	8 full or 16 half slots	512,000
DN 7200	24 slots	32 full or 64 half slots	2,048,000

SERVICES AND APPLICATION SOFTWARE

Ethernet

IEEE 802.3
IEEE 802.1p
IEEE 802.1q/d Bridging
IEEE 802.3ad Link Aggregation
IEEE 802.1ad Provider Bridging
IEEE 802.3x Flow Control
Q in Q VLAN Stacking
ARP Mediation
Advanced Ethernet Service Interworking with FR/ATM

IP/MPLS

OSPF, OSPF-TE
ISIS, ISIS-TE
RSVP-TE, LDP
IETF Pseudowires (PWE3/Draft Martini) for Ethernet, TDM, FR/ATM
LER/LSR Functionality
LSP Hot Standby
MPLS Fast Reroute
LSP Ping
LSP Traceroute
Virtual Circuit Connection Verification (VCCV)

ATM

UNI UNI/NNI 3.x/4.0
ILMI 4.0
PNNI 1.0 (Hierarchical)
AINI
IISP 1.0
TM 4.0
IMA 1.0/1.1
ATM-MPLS Interworking 1.0
IETF RFC 1483/2684 Multi-protocol Encapsulation

Frame Relay

FRF.1.2
LMI Rev.1/Annex D/Annex A
FRF.2.1 NNI
FRF.5 FR/ATM Network Interworking
FRF.8 FR/ATM Service Interworking
FRF.12 FR Fragmentation
FRF.13 Service Level Definitions
FRF.16 Multilink FR
FRF.19 FR OAM
IETF RFC 1490/2427 Multi-protocol Encapsulation

INTERFACES

Ethernet

4 port 10/100/1000 (Gigabit) Ethernet

Multiservice

1 port OC-48c/STM-16 ATM/POS
1 port/4 port OC-12c/STM-4 ATM/POS
2 port/4 port/12 port OC-3c/STM-4 ATM/POS

ATM

24 port T1/E1 ATM/IMA/CES
3 port/4 port/9 port/12 port DS-3
3 port E3
3 port CH DS3/1 ATM/IMA
3 port CH DS3/1/0 CES
1 port CH OC-3/STM-1 ATM/IMA

Frame Relay/IP

3 port CH OC-3/STM-1 FR/IP
3 port/9 port CH DS-3/1/0 FR/IP
24 port T1/E1 FR/IP

POWER REQUIREMENTS

Operating Voltage Range	-40V to -72V DC

Technical Information

ENVIRONMENTAL CHARACTERISTICS

Operating Temperature	0° C to +50° C (+32° F to +122° F)
Safety	UL Listed, UL 60950, UL Certified (Canada) - CSA C22.2 no. 60950, IEC 60950 and CB Scheme Certificate, EN 60950 3rd edition
NEBS Level 3	GR-1089-CORE; GR-63-CORE
Environmental	Verizon® RNSA-NEB-95-0003, Verizon SIT.NEBS.TE.NPI.2000.004, Version 1 SBC TP76200MP; AT&T® NEDS, EN 300-019
EMI	EN 6000 series, FCC part 15, Class A, ICES 003, CISPR Class A, EN55022: 1998 Class A, EN 300386-2 1997; EN50082-1 1997
CE Mark	EMC Directive (89/336/EEC), Low Voltage Directive (73/23/EEC)
Certification	OSMINE integration for TIRKS® and NMA®, Telcordia™ Network Configuration Manager

PHYSICAL CHARACTERISTICS

Model	Consumption	Height	Width	Depth
DN 7050®	350 W	7" (177.8 mm)	17.3" (439.4 mm)	19.75" (501.6 mm)
DN 7100®	680 W	12.35" (311.1 mm)	17.3" (439.4 mm)	19.75" (501.6 mm)
DN 7200®	2800 W	55" (1397 mm)	17.3" (439.4 mm)	22" (593 mm)

Rack Mounting	mid or front mount 19" (482.6 mm) telco rack, standard 23" (584.2 mm) telco rack (with optional ears)

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