

- Resilient hardware components, modular operating system and proactive call-home service agent delivers high availability
- Hardware-based filtering, prioritization and rate limiting features protect the control plane against DoS attacks



**Resilient 10 Gigabit Ethernet IX and ISP Networks**

Resilient 10 Gigabit Ethernet is now a key requirement in modern IX and ISP networks. Rock-solid stability, high density, maximum performance and secure management are key requirements in these networks where downtime is not tolerated.

Growing bandwidth requirements from corporate applications and broadband users are generating increasing traffic levels at exchange points and ISP backbones. To accommodate this traffic growth and new services, Trueserver, NTT-ME, Biglobe, Hanaro and others have deployed the Force10 E-Series to expand their network capacity.

**Advanced resiliency features for maximum uptime**

- Hitless component failover with zero packet loss at Terabit speeds
- 3-CPU route processor module and distributed forwarding delivers predictable performance during dynamic traffic loads
- Hitless software upgrades enable maintenance with minimal downtime

**Leading density and non-blocking performance**

- Industry leading capacity and density of GbE and 10 GbE ports with line-rate Layer 2, IPv4 (unicast, multicast) and IPv6 forwarding
- Pre-provisioning and hot insertion/removal features ensure seamless growth
- Deep buffering and congestion control ensures maximum network efficiency
- 100 GbE ready chassis and passive copper backplane guarantee investment protection

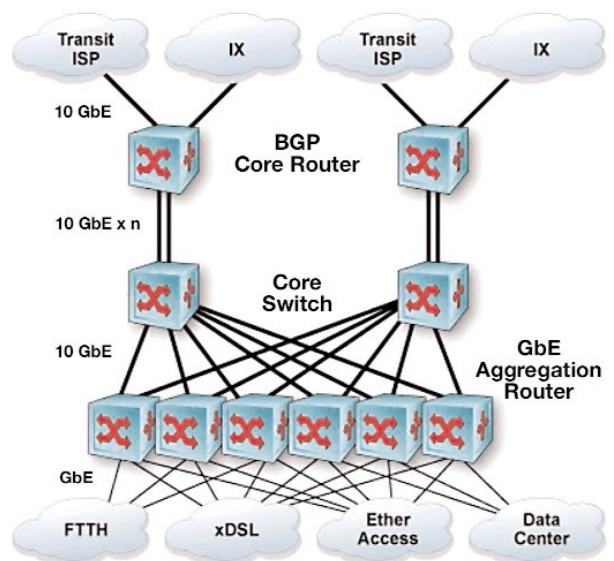
**Scalable security and management**

- Hot-lock Layer 2/Layer 3 ACLs allow real-time editing of rules without opening security holes
- DoS protection hardware filters, rate limits, and prioritizes control plane messages
- Secure management with SSH, SNMPv3
- Scalable sFlow traffic accounting with line card offload

**Terabit Speeds** with Zero Packet Loss

**100 Gigabit Ready** E-Series Backplane

**Scalable & Comprehensive DoS Protection**





E1200



E600



E300

## E-Series Chassis

### E1200

14 line card slots  
 Size: 36.75" h x 17.4" w x 24" d  
 (93.3 cm x 44.2 cm x 61 cm)  
 Weight with factory-installed components:  
 99 lbs (44.9 kg)  
 Weight fully loaded: 321 lbs (145.6 kg)  
 Maximum thermal output: 4,700W  
 (16,037 BTU/hour)  
 Maximum current draw per DC PEM: 130A  
 Maximum power dissipation:  
 5,000W or 17,060 BTU/hour

### E600

7 line card slots  
 Size: 28" h x 17.4" w x 24" d  
 (71.1 cm x 44.2 cm x 61 cm)  
 Weight with factory-installed components:  
 81 lbs (36.7 kg)  
 Weight fully loaded: 242 lbs (109.8 kg)  
 AC Power  
 Nominal input voltage: 100-240 VAC  
 Maximum thermal output: 3,500W  
 (11,900 BTU/hour)  
 Maximum input current:  
 12A @ 120 VAC per module  
 6A @ 240 VAC per module  
 7.3A @ 200 VAC per module  
 Maximum system power input: 3.7 KVA  
 DC Power  
 Maximum thermal output: 2,800W  
 (9,600 BTU/hour)  
 Maximum current draw per DC PEM: 75A  
 Maximum power dissipation: 2,800W  
 (9,600 BTU/hour)

### E300

6 line card slots  
 Size: 14" h x 17.4" w x 24" d  
 (35.6 cm x 44.2 cm x 61 cm)  
 Weight with factory-installed components:  
 55 lbs (25 kg)  
 Weight fully loaded: 185 lbs (84.1 kg)  
 Maximum thermal DC output: 1,950W (6650 BTU/hour)  
 Maximum current draw per DC PEM: 52A  
 Maximum power dissipation: 2,070W (7,000 BTU/hour)  
 AC Power  
 Nominal input voltage: 100 - 240 VAC 50/60 HZ  
 Maximum thermal output: 2500W (8500 BTU/Hour)  
 Maximum input current:  
 10A @ 100 VAC per module  
 8.3A @ 120 VAC per module  
 7A @ 200 VAC per module  
 5.8A @ 240 VAC per module  
 Maximum system power input: 2.60 KVA

## Common Specifications

### Physical

19" front, 19" middle (optional) & 23" middle  
 (E1200/E600 only) rack mountable  
 Maximum Operating Specifications:  
 Temperature: 32° to 104°F (0° to 40°C)  
 Altitude: no performance degradation to 10,000 feet  
 (3,048 meters)  
 Relative humidity: 5 to 85 percent, noncondensing  
 Shock: Bellcore GR-63  
 Vibration: Bellcore GR-63  
 Maximum Non-operating Specifications:  
 Temperature: -40° to 158°F (-40° to 70°C)  
 Maximum altitude: 15,000 feet (4,572 meters)  
 Relative humidity: 5 to 95 percent, noncondensing  
 Vibration: Bellcore GR-63

### E1200/E600 Redundancy/Availability

1+1 redundant Route Processor Modules (RPM)  
 8+1 redundant Switch Fabric Modules (SFM)  
 1+1 redundant DC Power Entry Modules (PEM)  
 3+1 redundant AC power supplies (E600 only)  
 Online insertion and removal of all components  
 Built-in cable management  
 Environmental self-monitoring

### E300 Redundancy/Availability

1+1 redundant Route Processor Modules (RPM)  
 1+1 redundant DC Power Entry Modules (PEM)  
 2+2 redundant AC power supplies  
 (E300 high line operation only)  
 3+1 redundant AC power supplies  
 (low line and high line operation)  
 Online insertion and removal of all components  
 Built-in cable management  
 Environmental self-monitoring

### Routing Features

RIP, OSPF, IS-IS, BGP, PIM, MSDP, VRRP

### IEEE Compliance

802.3ae 10 Gigabit Ethernet  
 802.3ab 1000Base-T  
 802.1p/Q VLAN Tagging  
 802.1s Multiple Spanning Tree Protocol  
 802.1w Rapid Spanning Tree Protocol  
 802.3ad Link Aggregation  
 802.1D Bridging  
 802.3x Flow Control

### Designed for NEBS

On board thermal and voltage monitoring  
 GR-63-Core: NEBS, physical protection  
 GR-1089-Core: EMC and Electrical Safety for  
 Network Telecommunications Equipment  
 SR-3580 NEBS criteria levels (Level 3 compliance)

### Safety

UL listed (UL 60950, 3rd Edition)  
 CUL CSA 22.2 #60950  
 CDRH 21  
 CFR 1040  
 EN 60950  
 EN 60825-1 Safety of Laser Products –  
 Part 1: Equipmt. Classification Req., and User's Guide  
 EN 60825-2 Safety of Laser Products –  
 Part 2: Safety of Optical Fiber Communication Systems

### EMC

USA: FCC CFR47 Part 15, Subpart J, Class A  
 Canada ICES-003, Issue-2, Class A  
 Europe: EN 55022 1998 (CISPR 22: 1997), Class A  
 Japan: VCCI V3/01.4 Class A

### Immunity

EN 300 386 V1.3.1 (2001-09) EMC for Network Equipmt.  
 EN 55024 1998  
 EN61000-4-2/IEC-1000-4-2  
 EN61000-4-3/IEC-1000-4-3  
 EN61000-4-4/IEC-1000-4-4  
 EN61000-4-5/IEC-1000-4-5  
 EN61000-4-6/IEC-1000-4-6



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