

- High Reliability, Availability and Serviceability
- Easy Adoption with Standard TCP/IP Stacks
- Uncompromised Commitment to Interoperability



Research/University/Government Labs • Geophysical/Atmospheric • Biotechnology/Pharmaceutical • Oil & Natural Gas Industries • Energy Research • Portals/E-commerce/Financial

Delivering High Performance Ethernet Solutions to the Data Center

As IT environments continue to grow, organizations transition from Fast (100 Mbs) to Gigabit Ethernet (1,000 Mbs) down to the desktop level. Newer and ever more data-hungry applications are devouring the bandwidth. Examples are IP video tele-conferencing, video streaming, multi-media content distribution, on-line training, cluster computing and data mining systems. With these applications becoming more widespread, IT managers recognize the need to migrate the heart of their structure to 10 Gigabit Ethernet today.



Furthermore, the ubiquity, reliability and scalability of the Ethernet protocol make the adoption of 10 GbE an evolution not a revolution. Neterion's solutions are standards-based, require no changes to the operating systems and provide Telco-class performance and reliability features. This alleviates networked server and storage bottlenecks. It also allows data center and IT managers to maintain their existing infrastructure, including their equipment, management software and personnel, thus reducing the total cost of ownership. Combined with best-of-breed 10 GbE technology from Force10 Networks E-Series resilient switch/routers, Neterion's 10 GbE Adapters deliver superior performance in all compute environments.

High Performance Ethernet Solution with Standard TCP/IP Stacks

- True 10 Gbps line-rate
- Comprehensive Stateless Offloads
- Full IPv6 support

All Platforms and Operating Systems

- PCI-X 1.0, 2.0 and PCI-express
- Linux, MS Windows, Sun Solaris, HP-UX, IBM AIX, and SGI Irix

Ease of Installation and Management Leads to Lower TCO

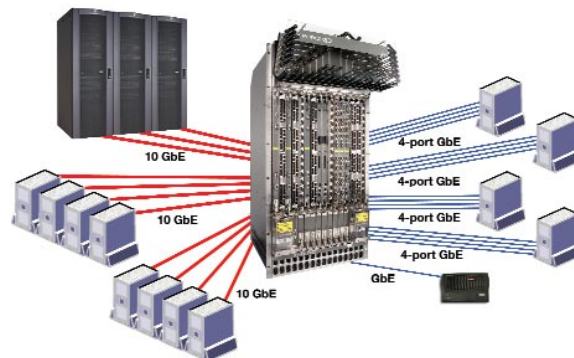
- "Ethernet Everywhere" at 10 Gbps reduces management and training costs
- Enables low-latency, high throughput and scalability
- Faster and simpler than 1 GbE link aggregation
- Enables iSCSI storage and clustering

**High Performance
10 Gig
Ethernet
with
Standard TCP/IP**

**Universally
Compatible
All Platforms and
Operating Systems**

**Lower
Total Cost of
Ownership**

Neterion and Force10 Networks Interoperability Results



- Interoperability Over 10 Gigabit Ethernet
- Interoperability 10 GbE with Jumbo Frames
- 802.1Q Interoperability Over 10 GbE
- 802.3ad Interoperability Over 10 GbE
- Microsoft Windows Hardware Compatibility (HCT)



Force10 E-Series

- E1200** 14 line card slots
Size: 36.75 h x 17.4 w x 24" d (93.3 x 44.2 x 61 cm)
- E600** 7 line card slots
Size: 28 h x 17.4 w x 24" d (71.1 x 44.2 x 61 cm)
- E300** 6 line card slots
Size: 14 h x 17.4 w x 24" d (35.6 x 44.2 x 61 cm)

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

Neterion Xframe Specifications

Full Standards Support

- PCI-X 1.0 (133 MHz), 2.0 (266 MHz) and PCI-express 64 bit bus
- DIX/802.3 FCS Offload, 802.3ad Slow Protocol, 802.3ad Link Aggregation, 802.1Q VLAN tag, 802.1D/p QoS, 802.3X Pause
- Microsoft Receive Side Scaling
- Wake-on-LAN and ACPI power management
- Optical cabling (SR 850nm, LR 1310nm) and CX4 copper
- Low power consumption (15W) for maximum PCI compatibility
- All major OS support: Linux (included in kernel), MS Windows (shipped in box), Solaris (shipped in box), HP-UX, IBM AIX, and SGI Irix

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 (static)
- 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

Advanced Features

- Extensive Protocol Offloads optimizing bus and processor utilization: TCP/UDP checksums, Large Send Offload (LSO), and Large Receive Offload (LRO)
- Jumbo frames support (9,600 bytes)
- Full IPv6 support for future-proof deployments
- "Deep-Split Bus Transaction" — industry's lowest latency
- Flexible Interrupt Features: INTA, PCI 2.2 MSI, and next generation MSI-X
- True QoS (Quality of Service) for up to 8 levels, allowing traffic to be prioritized at line rate
- On-board memory drastically reduces link-layer flow control
- ECC (SEC/DED) protection for all PCI bus transactions & data
- "Carrier Grade" environmental features for power, thermal, and noise



E-Series Switch/Routers



Neterion Xframe



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