

Pluribus Freedom E68-M Switch

High-Performance Leaf and Top of Rack Switch for Enterprise and Cloud Data Center Deployments with 44 SFP+ Ports Supporting 1/10 Gigabit Ethernet Interfaces and 6 QSFP+ Ports Supporting 1x 40 or 4x 10 Gigabit Ethernet Interfaces

Highlights

- Compact 1 RU standards-based high-performance Leaf / Top of Rack switch
- Pre-loaded with Netvisor (NVOS) software and optimized to support advanced Netvisor OS services
- Deployment-proven Broadcom Trident II switching ASIC
- Intel Xeon E3 CPU with 4 cores supports advanced network services
- 240 GB integrated SSD storage
- Sustained performance and throughput for all configurations
- Large-scale VXLAN configurations supported in hardware
- Redundant power and fans support high availability operations
- Low heat dissipation minimizes cooling requirements



Product Overview

The Pluribus Freedom E68-M switch is optimized for deployment at the data center edge, including the Leaf and ToR placements. The platform provides a unique combination of switch, compute and storage designed to support the advanced services of the Netvisor OS and the Pluribus Adaptive Cloud Fabric distributed architecture.

System Highlights

- Delivered pre-loaded with Pluribus Netvisor software (NVOS)
- Wire-speed Layer 2 and Layer 3 forwarding up to 1.36 Tb/s and 1.02 Bp/s
- Broadcom Trident II switching ASIC
- VXLAN services supported in hardware at wire-speed
- 12 Mb shared packet buffer with SmartTable and SmartBuffer technologies
- Xeon E3 1265v2 processor providing 4 cores
- 16 GB RAM memory and 240 GB Storage (internal SSD)
- 4x 1G Network Interface Cards

Netvisor Operating System

Enabling simple, plug-and-play deployments, the Pluribus Freedom E68-M switch is delivered as an integrated, turn-key solution that is shipped pre-configured with the Pluribus Netvisor Operating System (NVOS) Fabric Edition License. The Netvisor Fabric License includes Layer 2 and Layer 3 switching and routing functionality, all standard networking protocols, high availability features, VXLAN, Telemetry, Adaptive Cloud Fabric, Data Center Interconnect and security and segmentation capabilities.

The Pluribus Netvisor OS is a virtualized Network Operating System (NOS) that provides a best-in-class layer 2 and layer 3 networking foundation, advanced network services, VXLAN, distributed Adaptive Cloud Fabric™ intelligence and embedded network performance monitoring telemetry.

The Pluribus Netvisor software virtualizes the switch hardware, decoupling network resources from the underlying hardware to create multiple network containers on a single device. Each container can be dynamically allocated, and a single switch can instantiate multiple network containers. Each container has its own virtualized router and can support granular east/west and north/south network segmentation, strict multi-tenant services, security and policies, and the integration of virtualized network services and functions.

Pluribus Netvisor software is available as a perpetual or subscription license, and offers several software license-based feature options to meet different deployment requirements.

Netvisor OS Optional licensed capabilities

- **vNET License** – supports multi-tenant and network/traffic segmentation requirements. Licensed one per fabric based upon number of segments required. vNet capabilities requires at least one switch capable of supporting vNet Manager to be a member of the Adaptive Cloud Fabric architecture or the deployment of Virtual Netvisor (vNV) in a virtual server
- **VirtualWire™ feature license** – additive license per switch and can co-exist with standard network interfaces

Warranty

The Pluribus Freedom E68-M switch is backed by a three-year limited hardware warranty. Multiple extended support options, including advanced replacement and 24x7 on-demand support services, are available. Contact Pluribus Networks or a Pluribus Networks authorized reseller for complete details.

Specifications

Pluribus Freedom E68-M Switch

Switching Engine

- Broadcom Trident II ASIC

Onboard CPU

- 1 Xeon E3-1265v2 (4 Cores)
- 16 GB RAM
- Internal Storage: 240 GB SSD
- Storage Expansion Slots: NONE
- CPU-To-Switch Bandwidth: 4x 1G

Software

- Pluribus Netvisor OS (NVOS) Fabric Edition and any options ordered

Interface Ports

Network Interfaces

- 44x SFP+ each supporting 1x 10G or 1G
- 6x QSFP+ — each supporting 1x 40G or 4x 10G
- 4x 1G Network Interface Cards

Management Ports

- 1x RJ45 10/100/1000 and IPMI console
- Console: Console, VGA
- 2x USB ports

Performance

- Wire speed L2 and L3 packet forwarding
- Switching capacity: 1.36 Tb/s
- Forwarding rate: 1.02 Bp/s
- Supports jumbo frames up to 9216 Bytes
- 12 MB pooled packet buffer
- Latency 500ns

Hardware Capacity

- VXLAN supported in hardware
- SmartTable and SmartBuffer technologies
- 288K MAC addresses
- 1.2M MAC Addresses SW
- 16K IPv4 host routes
- 8K IPv6 host routes
- 16K IPv4 routes
- 8K IPv6 routes
- 4K IGMP/MLD Groups
- 4K VLAN IDs
- 1K VXLAN tunnels
- 2K ACL entries
- 256 RSTP Instances
- 16 MST Instances
- 32 Link Aggregation Group (LAG)
- 16 Member ports per LAG
- 64 Multi-chassis LAG (vLAG)
- 16 Member ports per vLAG
- 4,000 IGMP Groups
- 4,000 MLD Groups

Hardware Capacity (Continued)

- 256 vNIC (SVI)
- 16-way ECMP
- 256 VRRP groups
- 128 BFD sessions
- 8 QoS Queues per port
- 1,000 VXLAN vTEP Tunnels
- Open TCP Connections by nVOS: 200,000
- 200,000 Total TCP Connections by nVOS: 200,000
- TCP Connection Track Rate: 40,000/sec
- Total vPorts in Fabric: 1,200,000

Operational

- 2 x 1,000W redundant hot-swappable power supplies
- Power Draw: 400 Watt (maximum)
- Power: Gold Power Supply Efficiency
- Airflow: Back-to-front
- Cooling Requirements: 2900 BTU/hr (maximum)
- Input voltage: 90 to 264 VAC at 50-60 Hz
- Input Current: 10 Amps at 100/120 VAC, 5 Amps at 200/240 VAC

Physical and Environmental

- 1RU, mountable in either 19" or 21" racks
- Dimension: (WxDxH) 43.2 x 55.9 x 4.5cm (17 x 22.2 x 1.70in)
- Weight: 14 kg (30 lbs), with two PSU modules installed
- Operating Temperature: 0° to 40° C (32° to 104° F)
- Operating Altitude Range: 0 to 3,050 m (0 to 10,000 ft)
- Operating Relative Humidity: 10% to 85% non-condensing
- Storage Temperature: -40° to 70° C (-40° to 158° F)
- Storage Relative Humidity: 5% to 95% (noncondensing)

Regulatory

EMC Emissions

- FCC 47CFR, Part 15 Class A (2009) USA Radiated Emissions
- EN 55022 Class A (2006) +A1 2007 European Radiated Emissions VCCI Class A (2007) Japanese Radiated Emissions
- BSMI CNS 13438 and NCC C6357 Taiwan Radiated Emissions AS/NZS CISPR22:2009

RoHS

- RoHS 5 compliant except for lead press-fit connectors

Safety

- CAN/CSA-C22.2 No. 60950-1 (2007) Information Technology Equipment- Safety UL 60950-1 (2nd Ed.) Information Technology Equipment - Safety
- EN 60950-1 (2005) Information Technology Equipment - Safety
- IEC 60950-1 (2005) Information Technology Equipment - Safety (all country deviations): CB Scheme report EN 60825-1 +A1+A2 (1994) Safety of Laser Products - Part 1: Equipment Classification