Data Sheet

Pluribus Freedom 9460-X Switch

High-Performance Open Network Switch with Advanced Network Services for Leaf and Top of Rack Deployments with 48x10GbE Ports and 6x100GbE Uplinks

Highlights

- Compact 1RU standards-based open network switch with ONIE software installer
- Optimized to support Netvisor ONE OS advanced services
- Deployment-proven Broadcom StrataXGS® Trident3 switching ASIC
- Wire-speed, sustained performance, and throughput for all configurations
- Highly scalable VXLAN routing, bridging and gateway capabilities supported in hardware
- Redundant power and fans to support high-availability operations
- Hot-swappable, load sharing, redundant AC or -48 VDC PSUs
- Reversible airflow supports hot-aisle and cold-aisle placement

Product Overview

The Pluribus Freedom 9460-X switch is a best-in-class, programmable open network switch that provides standards-based networking to meet the stringent requirements of high-performance enterprise and cloud data centers. Built on the deployment-proven Broadcom StrataXGS® Trident 3 switching ASIC, the Pluribus Freedom 9460-X switch is optimized to deliver the advanced networking and service capabilities of the Pluribus Netvisor® ONE Operating System (OS). The Pluribus Freedom 9460-X switch is built with the Open Network Install Environment (ONIE) to support any compatible network operating system for maximum flexibility and adaptability to meet future networking requirements.

The Pluribus Freedom 9460-X switch delivers wire-speed Layer 2 and Layer 3 switching and routing with sustained packet forwarding performance of 2.16Tbps and 1Bpps throughput with all network services enabled. The switch provides high-density 10G ports, with 100G uplinks making it an ideal leaf/top of rack (ToR) switch. The Pluribus Freedom 9460-X switch provides 48xSFP+ server-facing ports that each support either 10GbE or 1GbE connections and 6xQSFP28 interfaces. Two out of the six QSFP28 ports can be configured as 4x10GbE or 4x25G connections, the remaining four QSFP28 ports operate at either 1x100GbE or 1x40GbE.

The platform is built for high availability environments with redundant and hot-swappable power and fan units. The switch is highly power efficient and offers airflow flexibility to support hot- or cold-aisle deployments. The compact design of the Pluribus Freedom 9460-X switch minimizes its deployment footprint, requires less power and lowers cooling requirements, which reduce the cost of network operations.

System Highlights

- Wire-speed full-duplex across all ports, Layer 2 and Layer 3 forwarding up to 2.16Tbps full duplex and 1Bpps
- 48xSFP+ switch ports, supporting 10GbE (DAC, 10GBASE-SR/LR) or 1GbE (1000BASE-T/SX/LX)
- 6x100QSFP28 switch ports, with two of them capable of supporting 100GbE (DAC, 100GBASE SR4/LR4) or 4x25GbE (DAC or fiber breakout cable)
- Broadcom Trident3 switching ASIC
- Intel Atom/Denverton C3558 2.2GHz quad-core x86 processor
- VXLAN services supported in hardware at wire speed
- 32MB shared packet buffer with Dynamic Buffer Allocation
- All ports on front; PSUs and fans accessible from rear
- Hot-swappable, load sharing, redundant AC or -48 VDC PSUs
- 4+1 redundant, hot-swappable fan modules
- Configurable hot-/cold-aisle with port-to-power and power-to-port airflow
- 1RU compact form factor mountable standard 19" racks

Unified Cloud Fabric™

The Unified Cloud Fabric (UCF) delivers the benefits of hyperscale agility, simplicity and availability to data centers, unified cloud networks and many other networking applications. The UCF unites networks across multiple dimensions: switches and servers, overlay and underlay networks, and distributed clouds. Powered by the Linux-based Netvisor® ONE operating system, the UCF solution features fabric-wide provisioning from any single switch in the fabric, resulting in massive service delivery speed-up and error reduction. This automation is achieved in a distributed, controller-less fashion, without the need for costly and complex software-defined networking appliances. The UCF solution offers a rich set of Layer 2 and Layer 3 overlay services to allow network architects and engineers to solve virtually any networking problem with agility in the overlay while maintaining a highly stable and scalable underlay. When deployed in servers with data processing units (DPUs), the fabric provides even finger-grained microsegmentation with distributed firewalls at the individual application level.

Netvisor ONE Operating System

Enabling simple, plug-and-play deployments, the Pluribus Freedom 9372-T switch is delivered as an integrated, turnkey solution that is shipped pre-configured with the Pluribus Netvisor ONE OS installed on the Open Network Install Environment foundation. Pluribus Netvisor ONE is a virtualized network operating system (NOS) that provides a best-in-class Layer 2 and Layer 3 networking foundation and optionally licensed advanced network services such as VXLAN, the distributed Unified Cloud Fabric™ architecture and embedded network performance monitoring telemetry.

Netvisor ONE Licensing Options

- **Netvisor ONE Enterprise Edition** — This license supports Layer 2 and Layer 3 switching and routing functionality with all standard networking protocols and high-availability features.
- **Netvisor ONE Fabric Edition** — This license supports VXLAN, telemetry, Unified Cloud Fabric and security and segmentation capabilities (not included with the switch).
- **vNET** — This license supports multi-tenant and network/traffic segmentation requirements. Licensed one per switch. vNET Manager capabilities require Virtual Netvisor (vNV) to be deployed (not included with the switch).
- **VirtualWire+™** — This license includes the Fabric license and enables VirtualWire capabilities (not included with the switch).
- **VirtualWire™** — This license enables VirtualWire capabilities in standalone Layer 1 VirtualWire mode (not included with the switch).

Warranty

The Pluribus Netvisor® ONE OS and Pluribus Freedom™ Open Networking Switches are backed by a 90-Day limited warranty and access to technical support. Pluribus FreedomCare™ extended support options provide for extended support coverage, which includes advanced product replacements, software updates and upgrades and access to 24x7 technical support. Contact Pluribus Networks or a Pluribus Networks authorized reseller for details on advanced support options.

Specifications

Pluribus Freedom 9460-X Switch

Switching Engine

- Broadcom BCM56771 Trident3 2.16 Tbps ASIC

Onboard CPU

- Intel Atom (Denverton) C3558 2.2GHz quad-core core x86 processor
- DDR4: 8GBx2 SO-DIMM
- SPI Flash: 16MBx2
- 2Storage: m.2 64GB MLC

Software

- Switch is loaded with Open Network Install Environment (ONIE) software installer
- Pluribus Netvisor ONE OS - based upon options ordered

Interface Ports

Network Interfacess

- 48xSFP+ each supporting 10GbE or 1GbE
- 6xQSFP28 with two of them capable of supporting 100GbE or 4x25GbE

Note: When a DAC cable is used in a topology, a link issue may be encountered if the CR4 Auto-Negotiation/Link Training does not turn on. This can be solved by manually enabling CR4 Auto-Negotiation/ Link Training.

Note: Due to a chip limitation, only two QSFP28 ports can support breakout modes at the same time. Ports 49 to 51 and 52 to 54 can only have one port in breakout mode. Currently, the default ports are 51 and 54, which can be changed according to user preference.

Management Ports

- 1xRJ-45 serial console
- 1xRJ-45 100/1000BASE-T management
- 1xUSB Type A storage port

Performance

- Switching capacity: 2.16Tbps full duplex
- Forwarding rate: 1Bpps
- Jumbo frames support up to 9398 bytes
- Packet buffer size: 32MB integrated packet buffer

Hardware Capacity

- Please refer to the Pluribus Netvisor® ONE OS data sheet

Operational

- PSUs: 2 redundant, load-sharing, hot-swappable AC or -48 VDC
- Input voltage: 100-240 VAC at 50-60 Hz. -48 to -72 VDC
- Max power: 356 Watts
- Typical power: 270 Watts
- Hot-swappable 4+1 redundant fan modules
- Supports both hot-aisle and cold-aisle placement with reversible airflow

Physical and Environmental

- Dimensions (WxDxH): 44.25 x 47.33 x 4.395 cm (17.42 x 18.63 x 1.73 in)
- Weight: 8.815 kg (19.43 lb), with two PSUs installed
- Fans: hot-swappable 4+1 redundant fans
- Operating temperature: 0°C to 40°C (32°F to 104°F)
- Storage temperature: -40°C to 70°C (-40°F to 158°F)
- Operating humidity: 5% to 95% non-condensing

LEDs

- 10G SFP+ Port LEDs: Link Speed, Link Status, Activity
- 100G QSFP28 Port LEDs: Link Status, Activity
- Ethernet Management Port LED: Link Status, Activity
- System LEDs: PSU1, PSU2, Diagnostic, Fans, Locator

Regulatory

EMI

- CE Mark
- EN55032
- CISPR 32
- AS/NZS CISPR 32
- EN55024
- CISPR 24
- CISPR 35
- EN 61000-3-3
- EN 61000-3-2
- FCC Title 47, Part 15, Subpart B Class A
- VCCI Class A
- BSMI Class A, CNS 13438
- CCC

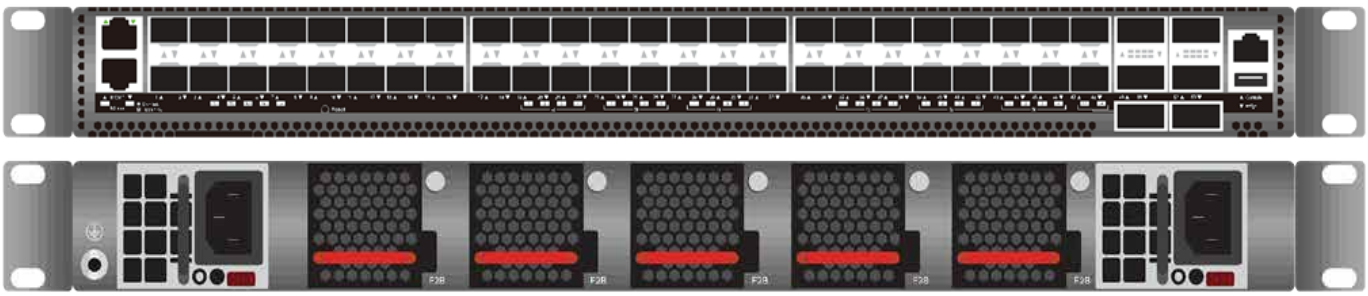
Safety

- EN60950, UL60950
- EN62368, UL62368
- CCC
- BSMI, CNS 14336-1

Environmental

- NEBS GR63-CORE (Pre-test)
- WEEE Standards: The switches complied with the following
  - WEEE standards: Waste Electrical and Electronic Equipment
  - (WEEE Directive 2002/96/EC)

RoHS 2.0 Compliant



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