Pluribus Freedom 9532L-C Switch

High-Performance Spine Switch Supporting Advanced Network Services with 32 40/100 Gigabit Ethernet QSFP28 Interfaces or up to 128 10/25 Gigabit Ethernet Connections

**Highlights**

- Compact 1RU standards based open network switch built on ONIE
- Deployment-proven Broadcom Tomahawk switching ASIC
- Wire-speed, sustained performance, and throughput for all configurations
- Large-scale VXLAN configurations supported in hardware
- Hot-swappable, load-sharing, redundant AC or -48V DC or 12V DC PSUs
- Minimal power consumption with up to 93% power efficiency, reducing operating costs
- Reversible airflow supports hot-aisle and cold-aisle placement

**Product Overview**

The Pluribus Freedom™ 9532L-C switch is an advanced best-in-class, programmable open network platform that provides high-capacity, standards-based networking to stay ahead of evolving service demands driven by cloud and Internet of Things (IOT) requirements for enterprise and service provider data centers. Built on the deployment-proven Broadcom StrataXGS® Tomahawk switching ASIC, the Pluribus Freedom 9532L-C is optimized to deliver the comprehensive advanced services of the Pluribus Netvisor® ONE Operating System (OS). The Pluribus Freedom 9532L-C is Open Compute Project (OCP) compliant and is built with the Open Network Install Environment (ONIE) to support any compatible network operating system for maximum flexibility and adaptability to meet future data center networking requirements.

The platform delivers wire-speed Layer 2 and Layer 3 switching and routing with sustained packet forwarding performance of 6.4 terabits per second (Tbps) and 3.2 billion packets per second (Bpps) throughput, even when complex, process-intensive services are enabled. The switch provides 32 x QSFP28 ports, supporting up to 32 x 40/100 GbE, 64 x 50 GbE, or 128 x 10/25 GbE connections. The switch is highly power efficient and is architected for high-availability environments with redundant and hot-swappable power and fan units. To meet diverse environmental requirements, the Pluribus Freedom 9532L-C switch offers airflow flexibility to support hot- or cold-aisle deployments.

The powerful next-generation switch can be deployed as a top-of-rack (ToR) or as a distributed spine, enabling scale-out architectures and eliminating the need for costly, oversized chassis switches in the data center. Its simplicity empowers network operators to build a highly flexible architecture that can scale capacity horizontally to optimize performance and enhance agility to support growing application traffic on a pay-as-you-grow basis. The compact design of the Pluribus Freedom 9532L-C switch dramatically reduces the deployment footprint and requires less power and lower cooling, which immediately reduces the cost of data center network operations.
System Highlights

- Wire-speed, full-duplex across all ports, Layer 2 and Layer 3 forwarding up to 6.4 Tbps full duplex and 3.2 Gbps
- Deploy as Top-of-Rack switch supporting 10 or 25 GbE to servers, with 40 or 50 or 100 GbE uplinks
- Deploy as spine switch supporting 40, 50, or 100 GbE ToR and spine interconnects
- 32 x QSFP28 switch ports, each supporting 1 x 100 GbE or 1 x 40 GbE, or via breakout cables, 2 x 50 GbE or 4 x 25 GbE or 4 x 10 GbE
- Broadcom Tomahawk switching ASIC
- Intel Atom C2538 quad-core 2.4 GHz x86 processor
- 16 MB integrated packet buffer
- VXLAN services supported in hardware at wire speed
- Intel Atom C2538 quad-core 2.4 GHz x86 processor
- All ports on front; PSUs and fans accessible from rear
- Hot-swappable, load-sharing, redundant AC or -48V DC or 12V DC PSUs
- 5+1 redundant, hot-swappable fan modules
- Configurable hot/cold aisle with port-to-power and power-to-port airflow
- 1RU compact form factor mountable in either a standard 19“ or 21“ rack

Adaptive Cloud Fabric

The Pluribus Adaptive Cloud Fabric (ACF) empowers organizations to speed up their transition to a completely automated network that supports software defined data center and cloud automation principles with a simpler non disruptive and more transparent architecture that makes it easier to deliver, manage and secure service delivery. The ACF can be deployed across a single data center, or geographically distributed to seamlessly interconnect multiple of data centers or aggregate the campus edge over existing core WAN infrastructure.

Netvisor ONE Operating System

Enabling simple, plug-and-play deployments, the Pluribus Freedom 9532L-C 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 Adaptive Cloud Fabric™ architecture and embedded network performance monitoring telemetry.

Netvisor ONE Licensing Options

- **Netvisor Enterprise** — Included with the switch. It supports Layer 2 and Layer 3 switching and routing functionality with all standard networking protocols and high-availability features.
- **Netvisor Fabric** — It adds VXLAN, telemetry, Adaptive Cloud Fabric and security and segmentation capabilities (not included with the switch).
- **vNET License** — It 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+™ License** — It includes Fabric license and enables VirtualWire capabilities (not included with the switch).
- **VirtualWire™ License** — It enables VirtualWire capabilities in standalone L1 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 9532L-C

Switching Engine
- Switch Silicon: Broadcom BCM56960 Tomahawk 3.2 Tbps No PHYs, No Retimers

Onboard CPU
- Intel Atom C2538 quad-core 2.4 GHz x86 processor
- DDR3: SO-DIMM 8 GB x 2
- SPI Flash: 8 MB x 2
- mSATA SSD: 64 GB MLC

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

Interface Ports
Switch Ports
- 32 x QSFP28 ports. Each port supports 1 x 40/100 GbE or 2 x 50 GbE or 4 x 10/25 GbE per port using splitter cables
Management Ports
- 1 x RJ-45 serial console
- 1 x RJ-45 100/1000BASE-T management
- 1 x USB Type A storage

Performance
- Switching Capacity: 6.4 Tbps full duplex
- Forwarding Rate: 3.2 Bpps
- Jumbo frames support up to 9398 Bytes
- Packet Buffer Size: 16 MB 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: 90 to 240 VAC at 50-60 Hz -36 to -72 VDC
- PSU Efficiency: Up to 93% for AC PSUs
- Power Input Option: 12 VDC
- Max Power: 550 Watts
- Typical Power: 335 Watts
- Hot-swappable 5+1 redundant fan modules
- Supports both hot-aisle and cold-aisle placement with reversible airflow

Physical and Environmental
- Dimensions (WxDxH): 43.8 x 51.5 x 4.35 cm (17.3 x 20.3 x 1.7 in)
- Weight: 10.87 kg (23.96 lb.), with two installed PSUs
- Operating Temperature: (F2B) 0° C to 45° C (32° F to 113° F) (B2F) 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
- Operating Altitude: 0 to 10,000 feet

LEDs
- QSFP28 Port LEDs: Link Status, Activity, Rate
- Ethernet Management Port LED: Link Status, Activity
- Console Port LED: Link Status
- System LEDs: Diagnostic, Locator, PSU and Fan Status

Regulatory
EMI
- CE Mark
- EN55022 Class A
- EN55024 EN61000-3-2
- EN61000-3-3
- FCC Part 15 Subpart B Class A
- VCCI Class A
Safety
- CB
- UL/CUL
Environmental
- Temperature: IEC 68-2-14
- Vibration: IEC 68-2-36, IEC 68-2-6
- Shock: IEC 68-2-29
- Drop: ISTA 2A
- Acoustic Level: 62dB@ 27°C
RoHS-6 Compliant