

# Pluribus Freedom 9532L-C Switch

High-Performance Spine Switch Supporting Advanced Network Services with 32x40/100GE QSFP28 Interfaces or up to 128x10/25GbE

## 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 6.4Tbps and 3.2Bpps throughput, even when complex, process-intensive services are enabled. The switch provides 32xQSFP28 ports, supporting up to 32x40/100GbE, or 128x10/25GbE 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 6.4Tbps full duplex and 3.2Bpps
- Deploy as Top-of-Rack switch supporting 10 or 25GbE to servers, with 40 or 100GbE uplinks
- Deploy as spine switch supporting 40 or 100GbE ToR and spine interconnects
- 32xQSFP28 switch ports, each supporting 1x100GbE or 1x40GbE, or via breakout cables, 4x25GbE or 4x10GbE
- Broadcom Tomahawk switching ASIC
- Intel Atom C2538 quad-core 2.4GHz x86 processor
- 16MB 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

## 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 9532L-C

### Switching Engine

- Switch Silicon: Broadcom BCM56960 Tomahawk 6.4Tbps full duplex  
No PHYs, No Retimers

### Onboard CPU

- Intel Atom C2538 quad-core 2.4GHz x86 processor
- DDR3: SO-DIMM 8GBx2
- SPI Flash: 8MBx2
- mSATA SSD: 32 GB iSLC

### 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

- 32xQSFP28 ports. Each port supports 1x40/100GbE or
- 4x10/25GbE per port using splitter cables

#### Management Ports

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

### Performance

- Switching Capacity: 6.4Tbps full duplex
- Forwarding Rate: 3.2Bpps
- Jumbo frames support up to 9398 bytes
- Packet Buffer Size: 16MB 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

