Data Sheet

Pluribus Freedom 9532L-C Switch

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

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
- Redundant power and fans to support high-availability operations
- 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 4.7 billion packets per second (Bpps) throughput, even when complex, process-intensive services are enabled. The switch provides 32 ultra-low latency QSFP28 FlexPorts that can support high-density 100, 40, 25 and 10 Gigabit Ethernet 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 and 4.7 Bpps
- 32 QSFP28 FlexPorts, each supporting 1x 100/40G or 4x 25/10G ports
- Each port supports single-mode and multimode fibers (duplex or MPO/MTP) and copper transceivers or cables
- Broadcom Tomahawk switching ASIC
- 16 Mb shared packet buffer
- VXLAN services supported in hardware at wire speed
- Intel Atom (Rangeley) C2538 quad-core 2.4 Ghz processor
- All ports on front; PSUs and fans accessible from rear
- Dual-redundant, load-sharing, hot-swappable PSUs
- 310 watt typical power consumption, with efficiency of up to 93%
- 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

Simplify the Data Center Architecture with a Single Device

The interface flexibility of the Pluribus Freedom 9532L-C switch allows a single device to be leveraged for all deployment points, such as the leaf and spine, in the data center architecture. Each of the 32 QSFP28 FlexPorts can be configured to support 100G, 40G, 25G or 10G interfaces for maximum agility. This flexibility optimizes data center network infrastructure investments through the standardization of fewer, simpler switching platforms that can be deployed everywhere. This dramatically simplifies deployment complexity, reduces the cost of sparing and lowers the total cost of operations.

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 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 ONIE foundation.

Pluribus Netvisor ONE is a Linux-based, containerized network operating system (NOS) that provides a best-in-class Layer 2 and Layer 3 networking foundation, Netvisor also offers the optionally licensed advanced network fabric overlay services of the Adaptive Cloud Fabric™ with embedded SDN-automation for underlay and overlay networking along with 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 Freedom C9532L-C switch is backed by a 12-month 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.

Deployment Examples

- Deploy Freedom 9532L-C as common switch platform for leaf-and-spine (ToR) placements supporting all interface speed requirements
- Deploy Freedom 9532L-C as spine switch supporting 40G and 100G spine interconnects and leaf uplinks
- Deploy Freedom 9532L-C as leaf (ToR) switch supporting high-density 10G and 25G to servers with 40G or 100G uplinks to existing spine switches
- Deploy as a high-capacity spine switch supporting uplinks from other Freedom 9000 Series switches utilized as leaf devices

Specifications

Pluribus Freedom 9532L-C Switch

Switching Engine

- Broadcom Tomahawk (BCM56960) ASIC

Onboard CPU / NFV Engine

- Intel Atom (Rangeley) C2538 quad-core 2.4 Ghz processor
- 16 GB SD-DIMM DDR3 RAM
- 16 MB SPI Flash
- 32 GB M.2 SSD MLC

Software

- Switch is loaded with ONIE software installer
- Pluribus Netvisor ONE OS – based upon options ordered

Interface Ports

Network Interfacess

- 32x QSFP28 FlexPorts – Each FlexPort supports 1x 40/100G, or 4x 10/25G using splitter cables

Management Ports

- 1x RJ45 serial console
- 1x RJ-45 100/1000BASE-T management
- 1x USB Type A storage

Performance

- Wire-speed L2 and L3 packet forwarding
- Switching capacity: 6.4 Tbps
- Forwarding rate: 4.7 Bpps
- Supports jumbo frames up to 9216 bytes
- 16 MB pooled packet buffer
- Ultra-low-latency 450 ns with configurable pipeline latency enabling sub-400 ns port-to-port operation
- Supports high-performance storage/RDMA protocols including RoCE and RoCEv2

Hardware Capacity

- VXLAN supported in hardware
- 104K MAC addresses
- 40K IPv4 host routes
- 20K IPv6 host routes
- 16K+ IPv4 routes
- VLAN IDs: 4K

Operational

- Two redundant, load-sharing, hot-swappable PSUs
- Input voltage 90 to 240 VAC at 50-60 Hz
- PSU efficiency up to 93%
- 350W maximum power (without pluggable optics)
- 310W typical power (without pluggable optics)
- Hot-swappable 5+1 redundant fan modules
- Supports both hot-aisle and cold-aisle placement with reversible airflow

Physical and Environmental

- 1RU, mountable in either 19” or 21” racks
- Dimension: (W x D x H) 43.8 X 51.5 x 4.35 cm (17.3 x 20.3 x 1.7 in)
- Weight: 10 kg (23 lbs)
- Storage Temp: -40°C to 70°C (-40°F to 158°F)
- Operating Temp: 0°C to 45°C (32°F to 113°F)
- Operating Humidity: 5% to 95% non-condensing
- Operating Altitude: 0 to 3,048 meters (0 to 10,000 Feet)

LEDs

- QSFP28 FlexPorts: status, activity, rate
- Ethernet Management port: status, activity
- Console Port: status
- System: diagnostic, locator, PSU and fan status

Regulatory

EMI

- CE Mark
- EN55022 Class A
- EN55024
- EN6100-3-2
- EN6100-3-3

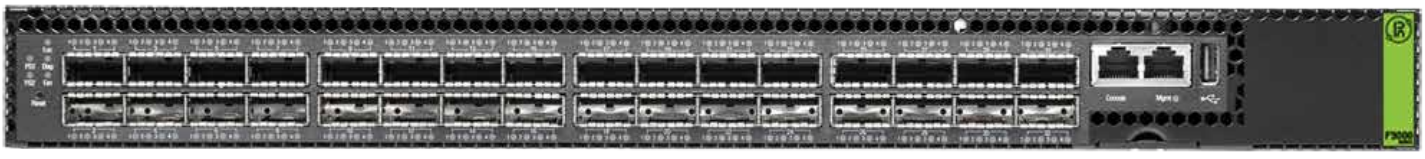
FCC Part 15 Subpart B Class A VCCI Class A Safety

- 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: 62 Db @ 27°C

RoHS-6 compliant



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