

Pluribus Freedom 9272-X Switch

High-Performance Open Network Switch with Advanced Network Services for Leaf and Top of Rack Deployments with 48x 10 Gigabit Ethernet SFP+ Interfaces and 6x 40 Gigabit Ethernet QSFP+ Interfaces

Highlights

- Compact 1RU standards-based open network switch built on ONIE
- Optimized to support Netvisor OS advanced services
- Deployment-proven Broadcom Trident II switching ASIC
- Intel Rangeley CPU supports integrated network services
- Sustained performance and throughput for all configurations
- VXLAN supported in hardware
- Redundant power and fans to support high-availability operations
- Minimal power consumption with up to 93% power efficiency reduces operating costs
- Reversible airflow supports hot-aisle and cold-aisle placement
- Low heat dissipation minimizes cooling requirements



Product Overview

The Pluribus Freedom™ 9272-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 II switching ASIC, the Pluribus Freedom 9272-X switch is optimized to deliver the advanced networking and service capabilities of the Pluribus Netvisor® ONE Operating System (OS). The Pluribus Freedom 9272-X switch 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 networking requirements.

The Pluribus Freedom 9272-X switch delivers wire-speed Layer 2 and Layer 3 switching and routing with sustained packet forwarding performance of 720 gigabits per second (Gb/s) and 1 billion packets per second (Bp/s) throughput with all network services enabled. The switch provides high-density and low-latency 10G and 40G ports, making it an ideal leaf/top of rack (ToR) switch. The Pluribus Freedom 9272-X switch provides 48 SFP+ server-facing ports that each support either 10G or 1G connections and 6 QSFP+ FlexPorts that can each be configured as 1x 40G or 4x 10G uplink connections.

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 9272-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 720 Gb/s and 1 Bp/s
- 48 SFP+ ports of 1/10G and 6 QSFP+ FlexPorts configurable as 1x 40G or 4x 10G
- Each port supports single-mode fibers, multi-mode fibers and copper transceivers or cables
- Broadcom Trident II switching ASIC
- VXLAN services supported in hardware at wire speed
- 12 Mb shared packet buffer
- All ports on front; PSUs and fans accessible from rear
- Dual redundant, load-sharing, hot-swappable PSUs
- 282 watt maximum power consumption with efficiency of up to 93%
- 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 in either a standard 19" or 21" rack

Meet Growing Data Center Capacity Requirements

The Pluribus Freedom 9272-X switch is an optimal leaf switch that enables building highly flexible ToR architectures. Its interface flexibility enables cost-effective horizontal capacity scale to support the server interface requirements for a broad range of next-generation applications and highly virtualized servers.

This agility allows the efficient leveraging of network infrastructure investments with the flexibility to quickly reconfigure the network as capacity and speed requirements change, reducing the cost of sparring and lowering the total cost of operations.

Deployment Examples

- Deploy the Freedom 9272-X as the leaf/ToR switch with 10G to servers and 40G uplinks to a Freedom 9532-C or Freedom 9232-Q Spine switch
- Deploy Freedom 9272-X as Leaf/ToR switch into existing networks with 10G to server and 40G uplinks to other vendor switches

Netvisor ONE Operating System

Enabling simple, plug-and-play deployments, the Pluribus Freedom 9272-X 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 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.

Netvisor ONE Licensing Options

- **Netvisor Enterprise** — includes Layer 2 and Layer 3 switching and routing functionality with all standard networking protocols and high-availability features
- **Netvisor Fabric** — adds VXLAN, telemetry, Adaptive Cloud Fabric and security and segmentation capabilities
- **vNET License** — supports multi-tenant and network/traffic segmentation requirements. Licensed one per fabric based upon number of segments. vNET capabilities require at least one Pluribus Freedom 9532-C or 9572-V switch to be a member of the Adaptive Cloud Fabric architecture or the deployment of Virtual Netvisor (vNV)
- **VirtualWire™ License** — additive license per switch that can coexist with standard network interfaces

Warranty

The Pluribus Freedom 9272-X 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.

Specifications

Pluribus Freedom 9272-X Switch

Switching Engine

- Broadcom Trident II (BCM56854) ASIC

Onboard CPU/NFV Engine

- Intel Atom (Rangeley) C2538 quad-core 2.4 Ghz processor
- 8 GB RAM, 32 GB SSD SO-DIMM DDR3 RAM with ECC

Software

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

Interface Ports

Network Interfaces

- 48x SFP+ — each supporting 1x 10G or 1G
- 6x QSFP+ — each supporting 1x 40G or 4x 10G

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: 720 Gb/s
- Forwarding rate: 1 Bp/s
- Supports jumbo frames up to 9216 Bytes
- 12 MB pooled packet buffer
- Latency (RFC2544) 720 ns

Hardware Capacity

- VXLAN supported in hardware
- SmartTable and SmartBuffer technologies
- 288K MAC addresses
- 16K IPv4 and 8K IPv6 host routes
- 16K IPv4 routes
- 8K IPv6 routes
- 4K IGMP/MLD Groups
- 4K VLAN IDs
- 1K VXLAN Tunnels
- 2K ACL TCAM

Operational

- 2x redundant, load-sharing, hot-swappable PSUs
- Input voltage 90 to 264 VAC at 50-60 Hz
- PSU efficiency up to 93%
- 282 watt maximum power without pluggable optics
- Hot-swappable 4+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: (WxDxH) 44.3 x 47.23 x 4.34cm (17.4 x 18.6 x 1.7 in)
- Weight: 8.5 kg (18.74 lbs) with two PSU modules installed
- Storage Temperature: -40°C to 70°C (-40°F to 158°F)
- Operating Temperature: 0°C to 40°C (32°F to 104°F)
- Operating Humidity: 5% to 95% non-condensing
- Operating Altitude: 0 to 3,048 meters (0 to 10,000 feet)

LEDs

- 10G SFP+: status, activity, rate
- 40G QSFP+ (40G): status, activity
- 40G QSFP+ breakout (4 per QSFP port): status, activity
- Ethernet management port: status, activity
- Console port: status
- System: PSU1, PSU2, diagnostic, locator, 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: 62Db@ 27°C

RoHS-6 compliant

