

Pluribus Freedom 9372-T Switch

High-Performance Enterprise and Cloud Data Center Open Network Switch with Advanced Network Services for Leaf and Top of Rack Deployments with 48 1/10GBASE-T RJ45 Copper Interfaces and 6 40 Gigabit Ethernet QSFP+ Interfaces

Highlights

- Compact 1 RU 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™ 9372-T 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 9372-T switch is optimized to deliver the advanced networking and service capabilities of the Pluribus Netvisor® operating system. The Pluribus Freedom 9372-T 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 data center networking requirements.

The Pluribus Freedom 9372-T 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 Pluribus Freedom 9372-T switch provides 48 ports for 100M, 1G and 10G RJ-45 copper server-facing ports 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 air-flow flexibility to support hot or cold aisle deployments. The compact design of the Pluribus Freedom 9372-T minimizes its deployment footprint, requires less power, and lowers cooling requirements, which reduces the cost of data center network operations.

System Highlights

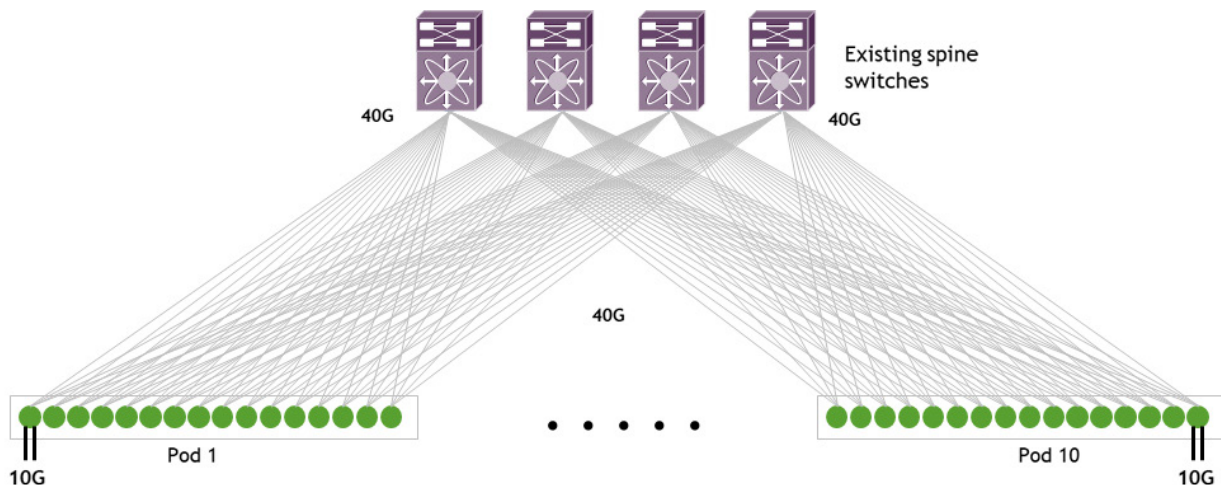
- Wire-speed Layer 2 and Layer 3 forwarding up to 720 Gb/s and 1 Bp/s
- 48 RJ-45 copper 1/10GBase-T ports and 6 QSFP+ FlexPorts configurable as 1x 40G 4x 10G
- Broadcom Trident II+ switching ASIC
- VXLAN services supported in hardware at wire-speed
- 12 Mb shared packet buffer with SmartTable and SmartBuffer technologies enable high-scale data centers
- Intel Atom (Rangeley) C2538 quad-core 2.4GHz processor
- All ports on front; PSUs and fans accessible from rear
- Dual redundant, load-sharing, hot-swappable PSUs
- 348 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
- 1 RU compact form factor mountable in either a standard 19" or 21" rack

Meet Growing Data Center Capacity Requirements

The Pluribus Freedom 9372-T switch is an optimal Leaf switch that enables building highly flexible copper-based ToR architectures. Its interface flexibility enables cost-effective horizontal capacity scale to support 1G or 10G copper server interfaces for a broad range of next generation applications and highly virtualized servers.

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

Existing Data Center Deployment with Pluribus Freedom Series Switches Inserted in the Leaf Layer

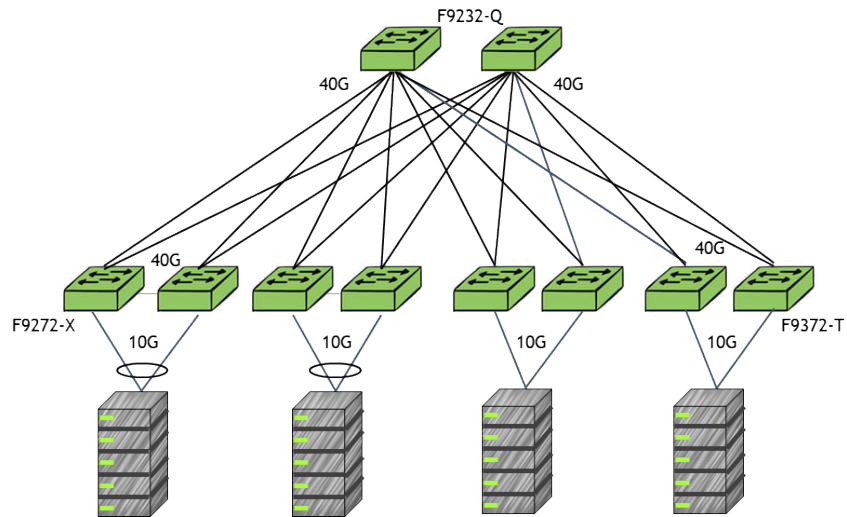


Pluribus Freedom 9000 Series switches with Netvisor OS inserted into the Leaf layer for an existing data center architecture with 10G at the Leaf and 40G uplinks to the Spine.

Deployment Examples

- Deploy the Freedom 9372-T as the Leaf/ToR switch with copper 10G to servers and 40G fiber uplinks to Freedom 9532-C or Freedom 9232-Q Spine switches
- Deploy Freedom 9372-T as Leaf/ToR switch into existing networks with copper 10G to server and 40G fiber uplinks to other vendor switches

40/10G Data Center Design with Pluribus Freedom 9000 Series Switches



Flexible, high density data center architecture with Pluribus Freedom series switches for 10G Leaf and 40G Spine uplinks.

Netvisor Operating System

Enabling simple, plug-and-play deployments, the Pluribus Freedom 9372-T switch is delivered as an integrated, turn-key solution that is shipped pre-configured with the Pluribus Netvisor Operating System (ONVL) installed on the ONIE foundation.

The Pluribus Netvisor OS is a virtualized Network Operating System (NOS) that provides a best-in-class layer 2 and layer 3 networking foundation, advanced network services, VXLAN, distributed Adaptive Cloud Fabric™ intelligence and embedded network performance monitoring telemetry.

The Pluribus Netvisor software 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.

Pluribus Netvisor software is available as a perpetual or subscription license, and offers several software license-based feature options to meet different deployment requirements.

Netvisor OS 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, Data Center Interconnect and security and segmentation capabilities

Optional licensed capabilities

- **vNET License** – supports multi-tenant and network/traffic segmentation requirements. Licensed one per fabric based upon number of segments required. vNet capabilities requires at least one Pluribus Freedom 9532-C switch to be a member of the Adaptive Cloud Fabric architecture or the deployment of Virtual Netvisor (vNV)
- **VirtualWire™ feature license** – additive license per switch and can co-exist with standard network interfaces

Warranty

The Pluribus Freedom 9372-T switch is backed by a three-year 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 9372-T Switch

Switching Engine

- Broadcom Trident II+ (BCM56864) ASIC

Onboard CPU / NFV Engine

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

Software

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

Interface Ports

Network Interfaces

- 48x RJ-45 Copper — each supporting 10G, 1G or 100M
- 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

Optics and Cables

RJ45 Copper ports

- 10GBASE-T on Cat 6, Cat 6A and Cat 7 twisted-pair cable
- 1000BASE-T and 100BASE-TX on Cat 5e UTP, Cat 6, Cat 6A and Cat 7 twisted-pair cable

QSFP+ Ports

- 40GBASE-CR4 DAC; 0.5 m to 7 m; passive and active
- 40GBASE-CR4 DAC to 4 x SFP+ 10GBASE-CR DAC; up to 5m passive; up to 10m active
- 40GBASE-SR4: Up to 100m over OM3 MMF, 150 m over OM4 MMF
- 40GBASE-SR4 to 6 x 10GBASE-SR: 100m over OM3, 150m OM4
- 40GBASE-LR4: Up to 10km over SMF

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) 720ns

Hardware Capacity

- VXLAN supported in hardware
- SmartTable and SmartBuffer technologies
- 288K MAC addresses
- 16K IPv4
- 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
- Input Current: Max 6A @100/120VAC, 3A @ 200/240VAC
- PSU efficiency up to 93%
- 348 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) 47.3x44.25x4.39 cm (18.6x17.4x1.71 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

- RJ-45: 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, EN 60950
- 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

