

# ENTERPRISE SWITCH

VB1025-48S

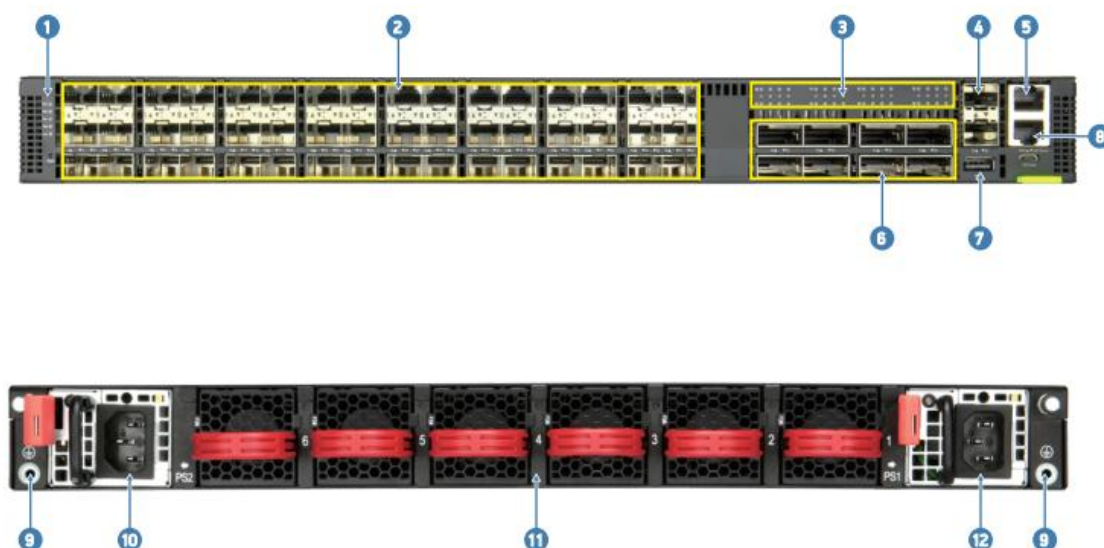


The Vantageo VB1025-48S switch is a Top-of-Rack (TOR) switch for high-performance data centers. In a compact 1RU form factor, the switch provides line-rate L2 and L3 switching across the 48 x SFP28 + 8 x QSFP28 ports, and each QSFP28 port can be configured as 4 x 25 GbE, 1 x 40 GbE, or 4 x 10 GbE by using DAC breakout cables. The VB1025-48S can be deployed as a TOR switch supporting 10/25 GbE to servers with 40/100 GbE uplinks. Which supports the installation of compatible Network Operating System (NOS) software, including the open source plus commercial NOS offerings.

## KEY FEATURES AND BENEFITS

- ▶ Cost-effective, open network switch for data center fabric.
- ▶ Deploy as Top-of-Rack switch supporting 10 or 25 GbE to servers, with 40 GbE, or 100 GbE uplinks
- ▶ 48 x SFP28 + 8 x QSFP28 switch ports, each QSFP28 supporting 1 x 100 GbE or 1 x 40 GbE, or via breakout cables, 4 x 25 GbE, or 4 x 10 GbE
- ▶ Layer 2 or Layer 3 forwarding of 4 Tbps (full duplex).
- ▶ Supports hot/cold aisles with port-to-power and power-to-port airflow SKUs
- ▶ All ports on front; PSUs and fans accessible from rear.
- ▶ Hot-swappable, load-sharing, redundant AC or -48V DC PSUs.
- ▶ 5+1 redundant, hot-swappable fan modules.
- ▶ Energy efficient.

## INTERFACES



## Description

1. System LEDs	6. 8 × 100G/QSFP28 ports	11. Hot-swappable 5 + 1 redundant fans
2. 48 × 25G/SFP28 ports	7. USB storage port	12. PSU 1
3. Port indicators	8. Console port	
4. 2 × 10G management ports	9. Grounding point	
5. Management port	10. PSU 2	

## ■ Ports

- Switch Ports:  
48 × 25 GbE SFP28 plus 8 × 100 GbE QSFP28 ports:
    - Each SFP28 supports 1 × 1 GbE (fixed speed, no Auto-negotiation) or 10GbE or 25 GbE single rate transceivers, AOC, and DAC
    - RJ-45 transceivers are supported with H/W version R01G or newer
    - Each QSFP28 supports 1 × 40/100 GbE or 4 × 25 GbE or 4 × 10 GbE per port using breakout cables
- Note: When a DAC cable is used in a topology, a link issue may be encountered if the CR4 Auto-Negotiation/Link Training does not turn on. This can be solved by manually enabling CR4 Auto Negotiation/Link Training.

## ■ Management Ports on Front Panel:

- 1 × RJ-45 serial console
- 2 × RJ-45 100/1000BASE-T management
- 1 × USB Type A storage port

## ■ Key Components

- Switch Silicon: Broadcom BCM56873 Trident III 2.0 Tbps  
No PHYs
- CPU Modules:  
Intel® Xeon® D-1518 processor quad-core 2.2 GHz  
DDR4: SO-DIMM 8 GB x 2  
SPI Flash: 16 MB x2  
M.2 SSD: 64 GB MLC

## ■ Performance

- Switching Capacity: 4 Tbps full duplex
- Forwarding Rate: 2 Bpps
- Jumbo frames support up to 9K Bytes
- Packet Buffer Size: 32 MB integrated packet buffer
- MAC Address: 32 K min./288 K max.
- VLAN IDs: 4 K
- IPv4: 16 K min./168 K max. host entries; 32 K LPM entries with
- TCAM-only mode
- IPv6: 8 K min./100 K max. host entries; IPv6/128= 8 K TCAM-only mode

**■ Physical and Environmental**

- Dimensions (WxDxH): 43.84 × 53.6 × 4.35 cm (17.26 × 21.1 × 1.71 in.)
- Weight: 10 kg (22.05 lb), with two installed PSUs
- Operating Temperature:
  - F2B Operating: 0°C to 45°C (32° F to 113° F)
  - B2F Operating: 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

**■ LEDs**

- SFP28 Port LEDs: Link Status, Activity, Rate
- QSFP28 Port LEDs: Link Status, Activity, Rate
- Ethernet Management Port LED: Link Status, Activity
- System LEDs: Diagnostic, Locator, PSU and Fan Status

**■ Power**

- PSUs: 2 redundant, load-sharing, hot-swappable AC or -48 VDC
- AC input range: 100–240 VAC
- DC input range: -36~-72 VDC
- Redundant, current sharing, PG

**■ Regulatory****■ EMI:**

- CE Mark
- EN55032 Class A
- EN55024
- EN61000-3-2
- EN61000-3-3
- FCC Title 47, Part 15, Subpart B Class A
- VCCI Class A
- CCC
- BSMI

**■ Safety:**

- CB
- UL/CUL
- CCC
- BSMI

**■ Environmental:**

- NEBS GR63-CORE (Pre-test)

**■ RoHS 2.0 Compliant****■ Country of Origin: Taiwan (TAA Compliant)**

- The switch complied with the following WEEE standards:  
Waste Electrical and Electronic Equipment (WEEE  
Directive 2002/96/EC)

## SOFTWARE FEATURES

- Supports Enterprise SONiC by Broadcom.
- Broadcom Enterprise SONiC helps IT organizations to run their business with the innovation, automation and reliability that comes from a commercial offering of SONiC with production-ready enterprise feature enhancements, hardening, and global support targeted for demanding data center leaf and spine fabrics.

**System and Platform Infrastructure Features**

- Dynamic Port Breakout
- DOM Information Display
- System Locator LED Support (Beacon)
- CMIS 4.0 Optics Support
- Hardware Watchdog
- 1G/10G BASE-T copper BASE-T Support (On select platforms)
- Multirate support for 3248 series platforms, and 100 Mb/s and 10 Mb/s support on N3248-TE and E3248-P platforms– CoPP (Control Plane Policing)
- Transceiver Parameter Tuning
- Third-Party Container Management
- PDDF and PDK Framework
- Interface Aliasing (IS-Standard and IS-Standard-Extended Interface Naming)
- Kdump Support
- Maintenance Mode
  - LACP Graceful Shut
  - BGP Graceful Shut
  - OSPFv2 Maximum Metrics
- Multi-Instance Redis DB
- Hardware Resource Allocation and Reservation
- Zero Touch Provisioning (ZTP)
- Auto Negotiation and Link Training
- Link Statistics Enhancements
- Link-Down Reason Codes
- Link Flap Error-Disable
- Forwarding Plane Drop Counters
- Time Zone Command Support
- 2 × 50G Speed Support
- Broadcom Debug Tool
- Memory Histogram

- System Ready for Services and Applications
- Secure Boot Process and Reference Implementation
- Syslog High Threshold notifications and clear for CPU/Temperature
- Per Platform CoPP
- Interface Beacon LED
- ZTP Provisioning using a USB Drive
- Flexible DPB
- Support Option to Bind the Third Party Container to the Management VRF
- Limiting CPU/Memory/Disk Usage for Third Party Containers
- Patching Support in SONiC (Patch Host/Containers)
- Option to Send Audit Log Messages to Syslog Server
- Ability to Filter Logs based on Facility and Severity
- I2C Error Statistics for Accton AS7326 and AS7816 Platforms
- Half Duplex Support for TD3-X5 - N3248/E3248 Platforms
- Media AutoFEC for FEC Type automation
- System alarm support for AS4630-54PE and AS4630-54NPE
- Linux Kernel upgrade to 5.10.162

## L2 Features:

- VLAN Auto-state
- Interface Hold-Down
- LACP Graceful Shutdown
- Uplink Tracking
- L2 MC-LAG
- L2 VXLAN
- L2 LVTEP
- LACP Fast Rate and LACP Fallback
- Static LAG
- LLDP
- UDLD
- MC-LAG Fallback
- MC-LAG Graceful Shutdown
- xSTP over MC-LAG
- PVST and RPVST+
- PVST and RPVST+ over MC-LAG
- DHCP snooping
- VLAN stacking (QinQ) on TD3 and TD4 platforms
- Port Channel Min-Links configuration enhancement
- Enhancement in showing the MSTP configuration to display the default region name
- Enhancement to configuring the MST region name as an empty string to interoperate with OS10/Arista/Cisco

## L3 Features:

- DHCP Relay Enhancements
  - DHCP Relay over VXLAN Overlay Interfaces
  - DHCP Relay Source Interface Selection (e.g. loopback)
  - DHCP Relay over IPv6 Link-Local Interfaces with RFC5549 Routes
  - DHCP Relay Hop Count Configuration
  - DHCP Relay Over IPv4 Unnumbered Interfaces
  - DHCP Relay Option 82, Sub Option 151 VRF Name/ID Option
  - DHCP Relay Option 82, Sub Option 5 Link-Selection Option RFC3527

- Support for Circuit-Id Formats I DHCP Relay Circuit-Id Option
- DHCP Relay and DHCP snooping support on the same VLAN
- Support for 4K L3 VLAN Interfaces
- Dynamic BGP neighbor
- IP fabric over IPv6 underlay RFC5549
- IP Helper
- L3 MC-LAG
- L3 VXLAN
- L3 LVTEP
- Routing Sub interface (on TD3-X5, TD3-X7, TD4-X11 platforms)
- Advertise PIP for both ACT-ACT and ACT-STBY on the Same Leaf Pair
- Route Leaking across VRFs including Management VRF
- BGP Docker Warm Restart
- Avoid Net link for Handling IPv6 Link-Local Address
- BFD Optimizations to Support 5x100msec Aggressive Timers in SW
- IP SLA (ICMP and TCP tracker)
- IPv4 Unnumbered Interfaces
- RPVST+ over MC-LAG
- RPVST+ Scaling to 3500 VLAN Ports
- Symmetric Hashing
- VXLAN over SVI Interface
- BGP for EVPN (with MLAG)
- BFD IS-CLIs
- BFD with VRF
- VRF support for syslog
- VRF support for SSH.in
- VRRPv3, VRRP/VRRPv3 over VRF
- Management VRF Hardening
- Management VRF for MCLAG
- NAT
- OSPFv2
- Multi Site Data Center Interconnect (DCI)
- RIB/FIB Consistency Checker
- Next Hop Group (NHG) Support
- RIF Counters for L3 Interfaces
- BFD Profile
- 4K L3 VLAN Interface Scale for SAG and Unique-IP Cases
- Nexthop resolution using default route
- MC-LAG Peer Gateway
- 1 Million Route Scale
- Route Updates Performance Improvements
- Drop Neighbor Entry to Protect CPU from Unknown IP Packets Hitting the CPU- CPU Offload for Neighbor Suppression
- CPU Offload for Slowpath ARP Flooding
- OSPFv2 GR
- Router Advertisement KLISH/REST/gNMI Support
  - CLI Commands for RA Retransmission Interval, RADv Disable
  - RFE-8106
- Standards-based ESI-based EVPN Multihoming support on TD3-X7, TD3-X5, TD3-X3, TD-X11, and TD4-X9 platforms

## ACL and Flow-Based Services

- PBR Enhancements for Service Chaining
- ACL-based CoPP
- ACL DSCP Map/Remarking
- ACL Rate Limiting
- Control Plane ACL
- Policy-based Routing (IPv4 and IPv6)
- ACL-based Packet Replication
- ACL Consistency Checkern

## Security Features:

- RADIUS and TACACS
- RADIUS/TACACS Password Obfuscation
- NTP Server and NTP Authentication
- NTP Prefer Option
- LDAP Integration
- Map LDAP groups to SONiC (RBAC) roles
- AAA Authorization support with TACACS+

## Manageability Features:

- Industry Standard CLI (IS-CLI)
- REST and gNMI Interfaces via OpenConfig YANG (OC-YANG)
- Role-Based Access Control (RBAC)
- RBAC and HAMd Enhancements
- SNMP Configuration Traps and OIDs
- Configuration Services – Chef for EVPN
- gNMI Subscription Support for Limited YANG Paths (OnChange, Interval, Once, Poll, Target defined)
- Bulking support in both REST(YANG patch) and gNMI
- Query parameter for REST and filtering support for gNMI
- Scalar encoding support for gNMI
- Support to Read Service Tag via SNMP
- SNMP Trap Enablement on Interface Instead of Global
- TEC certification – SNMP set command for sysName
- Wildcard support for OC-YANG interface's Ethernet counters and individual counters
- LDAP multiple role mapping
- Application bring up for events and alarmsn

## Multicast Features and Enhancements:

- L3 Multicast with PIM operates on L3 interfaces only
- IGMP
- IGMP Snooping (v1, v2, v3) (with MLAG)
- IPv4 PIM-SSM Support

## Debuggability and Serviceability features

- In-memory Debug Logging– Audit Logging and Syslogs
- Command to Return Interfaces to the Default Configuration
- Port Mirroring on Port Channel and VLAN

## Scalability improvements

- L3 VLAN Scale to 4K (for TD3-X7 based Platforms)
- Host Table Resource Reservation for Local Hosts

## QoS:

- RoCEv2 support for TD4-X11 and TH4 platforms
- RoCEv2 with Cut Through mode support for TD3-X7, TD4-X11, TH3 and TH4 platforms– RoCEv2 UDF-based Hashing support for TH4 platform
- RoCEv2 Support
- DSCP Marking Preservation for VXLAN
- QoS Map Support for Remarking and SVI
- BUM Storm Control

- Port and Priority Shaping
- Programmable PFC priority-to-queue mapping

## Telemetry and Instrumentation Features

- sFlow on Management VRF
- Inband Flow Analyzer (IFA) 2.0
- Drop Monitor
- Tail Stamping
- BST – Watermarks,
- Thresholds, and Snapshots
- Linux PTP (KNETSync)

## SONiC readiness for Campus use case

- Infrastructure level changes have been made extensively to make sure SONiC can run in Campus platforms (with lower memory 8G)
- POE, POE+ and POE-bt
- Port Access Control
  - 802.1X
  - MAC Authentication Bypass (MAB)
  - RADIUS Support
- Multiple RADIUS Servers
- RFC 2865 — RADIUS Client
- RFC 2868 — RADIUS Attributes for Tunnel Protocol Support
- RFC 3579 — RADIUS Support for EAP
  - Authentication Tiering
  - Downloadable ACLs
  - Dynamic ACL
- Named ACLs
- Per-session ACLs
- Filter-Id
  - Posture Assessment (Redirect ACL/URL, COA Using DAS)
  - Guest VLAN
  - Unauth VLAN
  - Open VLAN
  - Monitor Mode
  - STP
  - Port Default to Access VLAN
  - Aruba Clearpass, Cisco ISE, FreeRadius Interoperability
  - Support PAC clients on L3 (routing) VLAN
- MSTP
- Port MAC Security
- LLDP-MED
- Digital Optical Monitoring (DOM)
- Time Domain Reflectometry (TDR)
- EVPN VXLAN (scale is different for VXLAN on Campus platforms)
  - Warmboot

## Warranty

Contact [sales@vantageo.com](mailto:sales@vantageo.com)

## For More Information

To find out more about Vantageo Pvt Ltd products and solutions, visit [vantageo.com](https://vantageo.com)

## About Vantageo Pvt Ltd

Vantageo Pvt Ltd is a leading provider of world-class Servers & Storage Systems, Enterprise Workstations, Datacenter Management Software, Network Solution and Pre-defined Integrated Systems. Our focus is on delivering scalable and secure IT Infrastructure and Operations for enterprises. With an in-house manufacturing capacity, we develop and own the designs and IP of our products and software. At Vantageo, we take pride in our in-house capacity for product development, where we own the designs and intellectual property (IP) of our systems and software. This allows us to ensure the highest quality standards and maintain complete control over the manufacturing process. With a highly experienced leadership team, Vantageo brings a wealth of expertise in the IT Products & Services domain and a strong track record in global service deliveries for IT infrastructure services. We understand the challenges faced by organizations in modernizing their existing on-premise IT infrastructure, and we are committed to addressing those challenges head-on.

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