

ENTERPRISE SWITCH

VB1010-48S

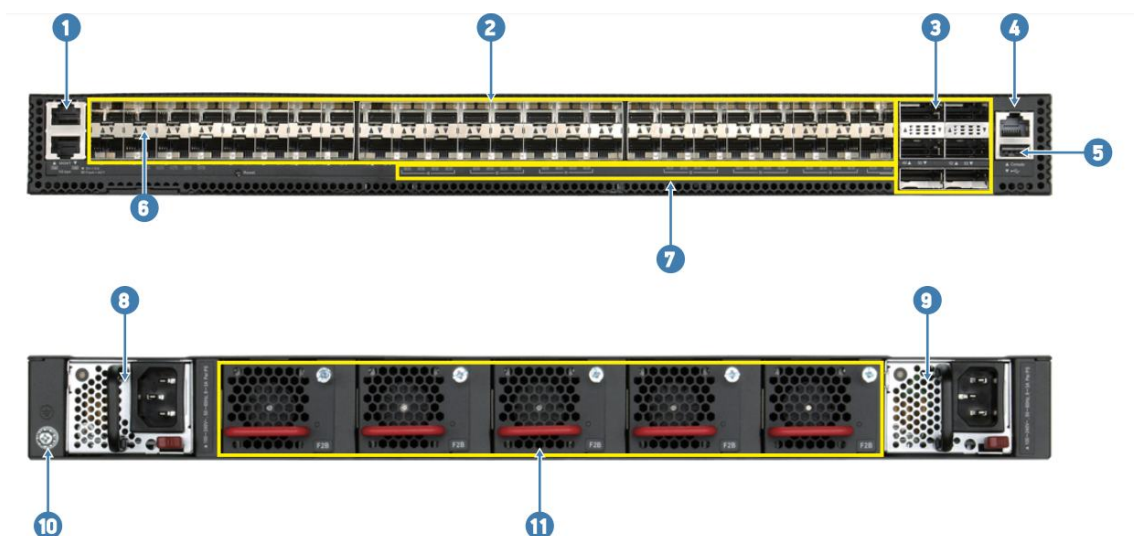


The Vantageo VB1010-48S switch meets the high-performance, availability, and network-scaling requirements of enterprise and cloud data centers. The VB1010-48S provides full line-rate switching at Layer 2 or Layer 3 across 48 × 10GbE ports and 6 × 100GbE uplinks. The switch can be deployed either as a Top-of-Rack switch, or as part of a 40GbE or 100GbE distributed spine, forming a non-blocking folded-Clos data center fabric. The switch is rack mountable in a standard 19-inch rack. The VB1010-48S hardware provides the high availability features required for data center operation, including: Redundant, hot-swappable AC or -48 VDC PSUs, 4+1 redundant fan modules, and port-to-power or power-to-port airflow options. The VB1010-48S is an ideal Top-of-Rack switch for virtualized data centers with support for VXLAN and NVGRE tunneling functions in hardware. Which supports the installation of compatible Network Operating System software, including the open source options, plus commercial NOS offerings.

KEY FEATURES AND BENEFITS

- ▶ Cost-effective, open network switch for data center fabric.
- ▶ 48 x SFP+ switch ports, supporting 10GbE (DAC, 10GBASE-SR/LR) or 1GbE (1000BASE-T/SX/LX).
- ▶ 6 × 100 QSFP28 switch ports, each supporting 100GbE (DAC, 100GBASE SR4/LR4) or 4 × 25GbE (DAC or fiber breakout cable).
- ▶ VXLAN and NVGRE tunneling support in hardware for network virtualization.
- ▶ Rack mountable in standard 19" racks.
- ▶ Supports hot/cold aisles with port-to-power and power-to-port airflow SKUs.
- ▶ All ports on front; PSUs, fan modules on rear.
- ▶ Hot-swappable, load sharing, redundant AC or -48 VDC PSUs.
- ▶ Hot swappable 4+1 redundant fan modules.
- ▶ Management: Ethernet and console RJ-45 ports; USB storage port.

INTERFACES



Description

1. Management port	6. Port LED indicators	11. Hot-swappable 4+1 Redundant Fans
2. 48 × 10G SFP+ Ports	7. 40/100 Breakout Mode LEDs	
3. 6 x QSFP28 Ports	8. PSU 2	
4. Console port	9. PSU 1	
5. USB storage port	10. Grounding Point	

■ Ports

- Switch Ports:
 - 48 x SFP+ each supporting 1GbE
 - 6 x QSFP28 each supporting 100GbE or 4 × 25GbE
- 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.
- Note: Due to a chip limitation, only two QSFP28 ports can support breakout modes at the same time. Ports 49 to 51 and 52 to 54 can only have one port in breakout mode. Currently, the default ports are 51 and 54, which can be changed according to user preference.

■ Management Ports on Front Panel:

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

■ Key Components

Switch Silicon: Broadcom BCM56771 Trident 3 1.28 Tbps
 CPU Modules:
 Intel Atom/Denverton C3558 2.2GHz 4 core x86 processor
 DDR4: 8GB x 2 SO-DIMM
 SPI Flash: 16 MB x 2
 Storage: M.2 64GB MLC

■ Performance

- Switching Capacity: 2.56 Tbps full duplex
- Forwarding Rate: 1 Bpps
- Jumbo frames support up to 9K Bytes
- Packet Buffer Size: 32 MB integrated packet buffer
- Subject to NOS:
 - MAC Address: 32 K min./288 K max.
 - VLAN IDs: 4 K
 - Support 4 K ECMP group
 - 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; IPv6/64=16 K TCAM-only mode

■ Physical and Environmental

- Dimensions (WxDxH): 44.25 × 47.33 × 4.395 cm (17.42 × 18.63 × 1.73 in)
- Weight: 8.815 kg (19.43 lb), with two PSUs installed
- Fans: hot-swappable 4+1 redundant fans
- Operating Temperature: 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

- 10G SFP+ Port LEDs: Link Speed, Link Status, Activity
- 100G QSFP28 Port LEDs: Link Status, Activity
- Ethernet Management Port LED: Link Status, Activity
- System LEDs: PSU1, PSU2, Diagnostic, Fans, Locator

■ Power

- PSUs: 2 redundant, load-sharing, hot-swappable AC or -48 VDC
Input Voltage: 100-240 VAC at 50-60 Hz. -48 to -72 VDC.
- Max Power: 356 W

■ Safety:

- EN60950, UL60950
- EN62368, UL62368
- CCC
- BSMI, CNS 14336-1

■ Environmental:

- NEBS GR63-CORE (Pre-test)
- WEEE Standards: The switches complied with the following WEEE standards: Waste Electrical and Electronic Equipment (WEEE Directive 2002/96/EC)
- RoHS 2.0 Compliant
- Taiwan RoHS CNS 15663

■ Regulatory

- Electromagnetic Compatibility:
 - CE Mark
 - EN55032
 - CISPR32
 - AS/NZS CISPR 32
 - EN55024
 - CISPR 24
 - CISPR 35
 - EN 61000-3-3
 - EN 61000-3-2
 - FCC Title 47, Part 15, Subpart B Class A
 - VCCI Class A
 - BSMI Class A, CNS 13438
 - CCC

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

For More Information

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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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