

VB Series ENTERPRISE SWITCH



Vantageo offers high-performance, bare-metal data center switches for top-of-rack and spine network deployment, providing flatter and scalable topologies and a non-blocking fabric. The Vantageo 100GbE data center switch is the industry's first switch accepted by OCP. The Vantageo VB series offers data center connectivity solutions with the SONiC operating system, targeting spine, leaf, and ToR requirements. The Vantageo VB series switches support 1G to 800G ports in 32-Port and 48-port configurations. The VB series can be deployed as a ToR switch supporting 10 GbE, 40 GbE, or 100GbE server connections in a leaf configuration. The VB series offers high performance and flexibility for computing and storage workloads. For 100G spine/leaf deployments, both the VB1100-32Q and VB2100-64Q models can be used for high-density deployments of 128 10GbE or 128 25GbE and 256 10GbE or 256 25GbE. The VB1400-32Q and VB2800-64O are high-performance spine switches for data center offering speed of 400GbE and 800GbE. Our industry-leading open networking hardware includes many features that offer efficiency, high availability, flexibility, redundancy, different airflow options, and hot-swappable fans/PSUs to provide non-blocking performance for mission-critical workloads.

KEY APPLICATIONS

- ▶ Enterprises that need data center networks with high-performance switching and SDN features.
- ▶ Fabric underlay switching for VMware or different virtualization environments in enterprise data center deployments.
- ▶ Multi-tenancy enabled with EVPN-VXLAN features for enterprise and campus deployments.
- ▶ High-density 10/25GbE ToR server aggregation in high-performance data center environments at the desired fabric speed with the VB1010 and VB1025 models.
- ▶ Low-scale fabric implementation using VB1100-32Q for leaf and spine along with VB1025 1/10/25GbE ToR switches offers cost-effective aggregation of 10/25/40/50/100 GbE uplinks
- ▶ Multi-functional 10/25/40/100GbE switching in high-performance computing clusters or different enterprise deployments requiring the highest bandwidth.
- ▶ The VB1400-32Q and VB2800-64O are high-performance spine switches for data center offering speed of 400GbE and 800GbE.

KEY FEATURES

- ▶ High-density ToR and spine switches with up to 48 of 25GbE or 32 ports of 100GbE or 64 ports for 800GbE
- ▶ Multi-rate 100GbE ports support 10/25/100/400/800GbE
- ▶ Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features, including OSPF and BGP routing support

- ▶ Line-rate performance via non-blocking switch fabrics: 3.2 Tbps (6.4 Tbps full-duplex) on VB1100-32Q, 2.0 Tbps (4.0 Tbps full-duplex) on VB1025-48S , 1.08 Tbps (2.16 Tbps full-duplex) on VB1010-48S, 5.4 Bpps(12.8 Tbps) on VB1400-32Q and 20.8 Bpps (51.2 Tbps) on VB2800-64O.
- ▶ L2 multipath support via Virtual Link Trunking (VLT) and routed VLT support
- ▶ VXLAN gateway functionality support for bridging and routing the non-virtualized and the virtualized overlay networks with line-rate performance
- ▶ 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.
- ▶ Converged network support for DCB, with priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx and iSCSI TLV support
- ▶ Routable RoCE to enable the convergence of compute and storage in leaf/spine fabrics
- ▶ Front panel-to-PSU airflow or PSU-to-front panel airflow. Redundant, hot-swappable power supplies and fans on most models
- ▶ Supports the open source Open Network Install Environment (ONIE) for zero-touch installation of alternate network operating systems
- ▶ Tool-less rail kits can be ordered for most of the available models to reduce time and resources for switch rack installation.
- ▶ Power-efficient operation to 45°C helps reduce cooling costs in temperature-constrained deployments

Product Model	VB1001-48T	VB1010-48T	VB1010-48S	VB1025-48S
Product Image				
Port				
1GbE(RJ45)	48 × 1GbE			
10GbE Fiber/Coper(RJ45)	6×1G/10G SFP+	48 × 10G RJ45	48 × 10G SFP+	32 × 10G SFP+*
25GbE(native)/*/breakout		4×25 GbE	24 × 25G SFP28 *	48 × 25G SFP28
40GbE/100GbE/*/breakout		6×40G/100G QSFP28	6 × 100G QSFP28	8 × 100G QSFP28
400GbE/800GbE				
Management Ports	1xRJ45 Serial Console 1xRJ45 100/1000BASE-T Management Port (IPv6 Support) 1xMicro-USB Storage Port	1xRJ45 Serial Console 2xRJ45 100/1000BASE-T Management Port (IPv6 Support) 1xUSB Type-A Storage Port	1xRJ45 Serial Console 1xRJ45 100/1000BASE-T Management Port (IPv6 Support) 1xUSB Type-A Storage Port	1xRJ45 Serial Console 1xRJ45 100/1000BASE-T Management Port (IPv6 Support) 1xUSB Type-A Storage Port
Performance				
Packet Buffer	4MB	32MB	32MB	32MB
Forwarding Rate	61.6 Mpps	1 Bpps	1 Bpps	2.0 Bpps
Switching Capacity	108 Gbps	1.08 Tbps full duplex	2.16 Tbps Full Duplex	4 Tbps (full duplex)
Memory	8GB DDR4	16GB DDR4	16GB DDR4	16GB DDR4
Storage	M.2 32G MLC SSD	M.2 64G MLC	M.2 32G MLC SSD	M.2 64G MLC SSD
MAC Addresses	64K min./112K Max	32K min./288K Max	32K min./288K Max	32K min./288K Max
VLAN IDs	4K	4K	4K	4K
Physical				
Dimensions (WxDxH)	44×35×4.4cm	44.25×47.33×4.395 cm	44.25 × 47.33 × 4.395 cm	43.84 × 53.6 × 4.35 cm
Form Factor	1RU	1RU	1RU	1RU
Weight	5.8 kg (12.8lb)	9.59 kg(21.14lb)	8.815 kg (19.43 lb)	10 kg (22.05 lb)
Applicable PSU: AC to DC	100 - 240 VAC at 50-60 Hz	100 - 240 VAC 50-60 Hz	100 -240 VAC 50-60 Hz	100 - 240 VAC 50-60 Hz
Redundant Power Supply	2 Redundant	2 Redundant	2 Redundant	2 Redundant
Power Consumption	Max. 93 W	Max. 323 W	Max. 356 W	Max. 550 W
Hot-Swappable Redundant Fans	Fixed 2 + 1	4+1	4 + 1	5+1

Product Model	VB1100-32Q	VB2100-64Q	VB2400-32Q	VB1400-32Q	VB2800-64Q
Product Image					
Port	10GbE Fiber/Coper(RJ45) 128 × 10G SFP+* 25GbE(native)/breakout 128 × 25G SFP28* 40GbE/100GbE/breakout 32 × 100G QSFP28 400GbE/800GbE Management Ports 1xRJ45 Serial Console 1xRJ45 1000BASE-T Management Port (IPv6 Support) 2×10G SFP + Management Port 1xUSB Type-A Storage Port	256 × 10G SFP+* 264 X 25G SFP28* 64 × 100G QSFP28 1xRJ45 Serial Console 1xRJ45 1000BASE-T Management Port (IPv6 Support) 1xUSB Type-A Storage Port	128×25G QSFP-DD* 128×100G QSFP-DD* 32×400G QSFP-DD 1xRJ45 Serial Console 1xRJ45 1000BASE-T Management Port (IPv6 Support) 2×10G SFP + Management Port	128×100G/64×200GE QSFP56-DD* 32×400G QSFP-DD 1xRJ45 Serial Console 1xMicro-USB Console Port 1xRJ45 1000BASE-T Management Port (IPv6 Support) 2×10G SFP + Management Port 1xUSB 3.0 Storage Port	2×25G QSFP-28 64X100G OSFP 64X400G/ 800G OSFP 1xRJ45 Serial Console 1xRJ45 100/1000M OOB Management Port (IPv6 Support) 1xMicro-USB Console Port 1xUSB 3.0 Storage Port
Performance	Packet Buffer 32MB Forwarding Rate 2.0 Bpps Switching Capacity 6.4Tbps Full Duplex Memory 16GB DDR4 Storage M.2 128GB MLC SSD MAC Addresses 32K min./288K Max VLAN IDs 4K	42MB 4.2 Bpps 12.8Tbps Full Duplex 16GB DDR4 M.2 128GB MLC SSD 8K min./264K Max 4K	64 MB 5.21 Bpps 12.8Tbps Full Duplex 16GB DDR4 M.2 50GB MLC SSD 384K Max 4K	132 MB 5.4 Bpps 12.8Tbps Full Duplex 16GB DDR4 M.2 64GB NVMe SSD MLC 384K Max 4K	165.2 MB 20.8 Bpps 51.2 Tbps 32GB DDR4 M.2 128GB MLC SSD 264K Max 4K
Physical	Dimensions (WxDxH) 44.25 × 47.3 × 4.39 cm Form Factor 1RU Weight 10.87 kg (23.96 lb)	43.8 × 58.0 × 8.8 cm 2RU 14.11 kg (31.1 lb)	43.84 × 53.6 × 4.31 cm 1RU 11.06 kg (24.38 lb)	43.84 × 59 × 4.35 cm 1RU 11.85 kg (26.12 lb)	43.6 × 76.2 × 8.77 cm 2RU 31.07 kg (68.49 lb)
Applicable PSU: AC to DC	100 - 240 VAC 50-60 Hz	100 - 240 VAC 50-60 Hz	100 - 240 VAC 50-60 Hz	200 - 240 VAC 50-60 Hz	200-240,16A
Power Consumption	Max. 550 W	Max. 760 W	Max. 1100 W	Max. 714 W (W/O Transeiver)	Max. 768 W (W/O Transeiver)
Redundant Power Supply	2 Redundant	2 Redundant	2 Redundant	2 Redundant	2 Redundant
Hot-Swappable Redundant Fans	5+1	3+1	5+1	5+1	3+1

Environmental

- Power Supply: 100–240 VAC 50/60 Hz
- AC Max. Operating Specifications:
 - Operating Temperature: 32° to 113°F (0° to 45°C)
 - Operating Humidity: 5 to 90% (RH), non-condensing
- Max. Non-Operating Specifications: Storage
 - Temperature: –40° to 158°F (–40° to 70°C) Storage
 - Humidity: 5% to 90% (RH), non-condensing
- Fresh air compliant to 45°C

Redundancy

- Hot swappable redundant power
- Hot swappable redundant fans (fixed power supply and fans VB1001-48P)

Regulatory Compliance

- EMI:
 - CE Mark
 - EN 55022 Class A
 - EN 55024
 - EN 61000-3-2
 - EN 61000-3-3
 - FCC Part 15 Subpart B Class A
- VCCI Class A
- Safety: CB UL/CUL
- Environmental:
 - IEC 68-2-14 Vibration: IEC 68-2-36
 - IEC 68-2-6 Shock: IEC 68-2-29
 - Drop: ISTA 2A
- RoHS-6 Compliant

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)access
- 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, 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
- STP,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
- Trunking
- Tagging Support
- Access list
- FTP, TFTP and SFTP Support
- IEEE 802.1Q

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 | 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 5×100msec 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, SIEM Server and NTP,SIEM Authentication
- NTP ,SIEM 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 V2/V3 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

To find out more about Vantageo Pvt Ltd products and solutions, visit vantageo.com