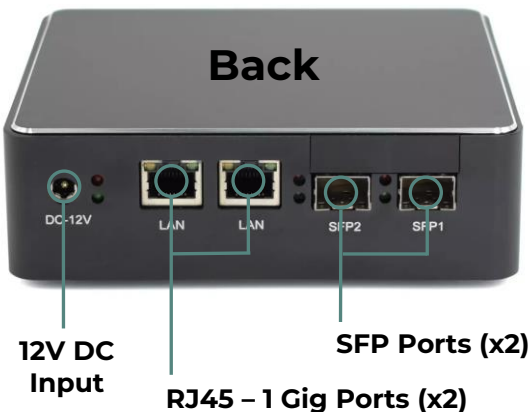
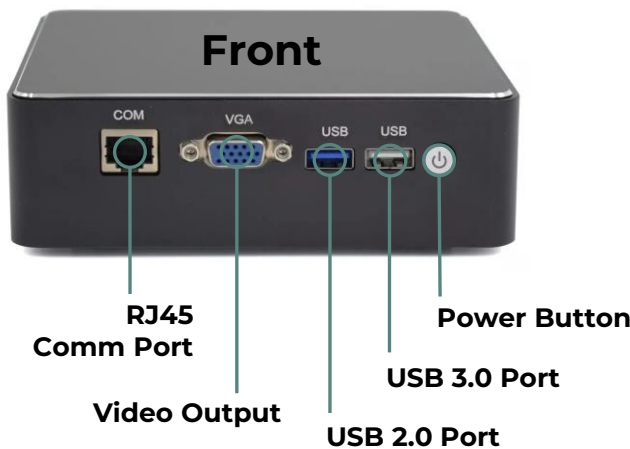




VBG H1-J1900

VIRTUAL BROADBAND GATEWAY

Next Generation Residential Customer Premise Equipment



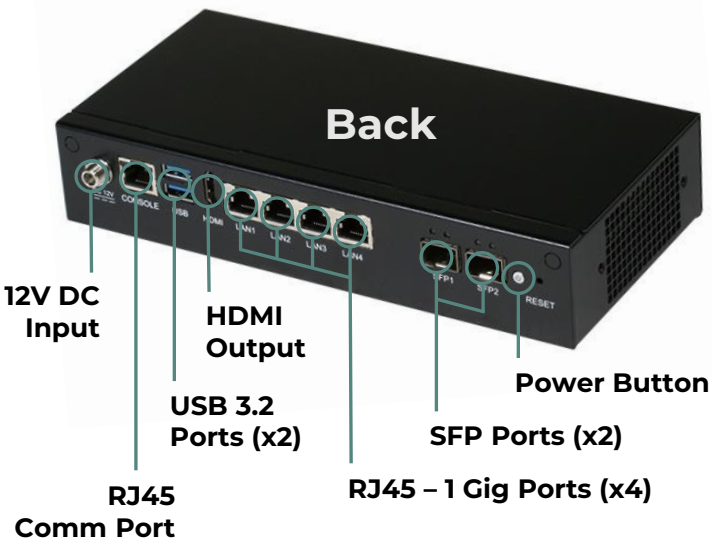
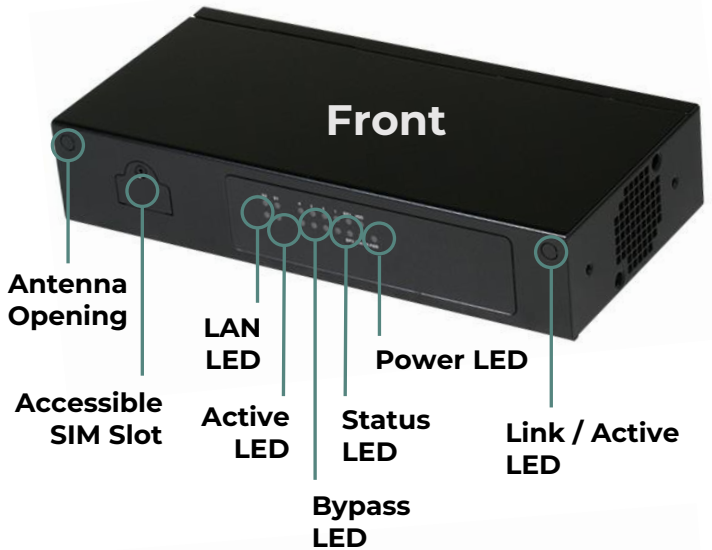
Item	Specification
CPU	Intel Celeron J1900 SOC Quad-Core 2.4 GHz
CPU Launch Date	Q4 '13
Memory	4GB DDR3L
Storage	32GB mSATA SSD
USB	1x USB 2.0 and 1x USB 3.0
COM	1x RJ45 COM Port
Power	DC 12V-3A – Adapter (Included)
Network Ports	2x 1GB RJ45 Ports 2x SFP Ports
Wi-Fi	PCI-E (No Antenna)
Dimensions	140x127x40mm / 5.5"x5"x1.5"
Weight	Gross Weight 1.55 kg / 3.30 lbs.
Mounting	VESA/DIN Rail Compatible, VESA Plate Included
Material	Aluminum Alloy
Manufacturer Warranty	4 Years
Package Contents	1x VBG 1x DC Power Adapter 1x Power Cord – 3 Feet Long 1x VESA Mounting Plate + Screws



VBG FWS-2273

VIRTUAL BROADBAND GATEWAY

Next Generation Commercial Customer Premise Equipment



Item	Specification
CPU	Intel Atom E3940 SOC Quad-Core 1.8 GHz
CPU Launch Date	Q4 '16
Memory	4GB DDR3L
Storage	32GB mSATA SSD
USB	2x USB 3.2
COM	1x RJ45 COM Port
Power	DC 12V – Adapter (Included)
Network Ports	4x 1GB RJ45 Ports 2x SFP Ports
Wi-Fi	None
Dimensions	220x105x44mm / 8.66"x4.13"x1.73"
Weight	Gross Weight 0.93 kg / 2.04 lbs.
Mounting	None
Material	Aluminum Alloy
Manufacturer Warranty	3 Years
Package Contents	1x VBG 1x DC Power Adapter 1x Power Cord – 3 Feet Long



NETWORK TOP OF RACK SWITCH E680-48X8C



The E680 series are high-performance switches in compact 1U form factors. These switches come with complete system software, comprehensive protocols, and applications to facilitate the rapid service deployment and management of Layer 2 and Layer 3 networks. The series includes redundant hot-swappable power supplies, and 2+2 hot-swappable smart fans for superior processing performance and network reliability. Supporting advanced features, including MLAG, VXLAN, IPv4/IPv6, QoS, ISIS, VRRP, GRE, MPLS, etc., this switch meets next generation Metro and HCI (Hyper-Converged Infrastructure) networks.

PRODUCT HIGHLIGHTS

- > Support MLAG (Multi-Chassis Link Aggregation) for Networking Reliability
- > Support IEEE 1588v2 Precision Time Protocol (PTP TC and BC Mode)
- > 1+1 Hot-swappable Power Supplies, 2+2 Smart Fans
- > Support G.8031, G.8032, Ethernet OAM, MPLS, VPLS, VPWS, L3VPN
- > Support OSPF/OSPFv3, BGP4/BGP4+, ISIS, BFD
- > Support CLI/WEB/JSON-RPC and OVSDDB for Flexible Operation
- > Support PFC, RoCE, IPFix, Latency monitor and EFD
- > Support SSH, ACL, AAA, 802.1X, RADIUS, TACACS+, etc. for Security
- > IPv4/IPv6 Dual-stack and Tunnel for Future Network Expansion

ERROR-FREE NETWORK CONFIGURATION

- > Support VXLAN, NVGRE, GENEVE
- > Support DCBX, GRE Tunnel
- > Support PFC, ECN, DCBX
- > Realized lossless Ethernet low latency forwarding based on RDMA (Remote Direct Memory Access)
- > Support advanced features of MPLS, LDP, MPLS-L2VPN, MPLS-L3VPN, VxLAN-BGP-EVPN, IPFIX
- > Support SNMP (Managed by Zabbix) v1, v2, and v3

SECURE AND SIMPLIFIED ACCESS

- > Support IPv4/IPv6 ACL and MAC whitelisting
- > Support ARP inspection
- > Support IP source guard
- > Support IEEE802.1X RADIUS authentication, TACAS+
- > Support DHCP Server Relay/Snooping
- > Support Control Plane Protect (CoPP), Black & White List, and Rate Limit features

HIGH AVAILABILITY AND MULTI_SERVICE SUPPORT

- > All ports support MLAG
- > Support LACP, VRRP, VARP, Smart Link, BFD, ERPS, G.8031, G.8032, Load-Balancing, etc
- > IPv4/IPv6 Dual Protocol Stack
- > Unicast Routing
- > The built-in QoS capabilities and flexible queuing technologies guarantee high quality services
- > Support traffic classification based on COS/DSCP (simple classification)

Item / Quantity	Specification
Uplink Ports = 8	100 Gig QSFP28
Downlink Ports = 48	10 Gig SFP+
Console Port = 1	RJ45 (Rear Panel)
Management Port = 1	RJ45 (Rear Panel)
Dimensions	17.4"W x 14.9"D x 1.7"H
Weight	19.5 lbs.
Power	Dual C13 AC or DC PSUs
Typical Power Draw	125 Watts
Max Power Draw	160 Watts
Operating Temperature	-32 to 113 F
Manufacturer Warranty	1 Year
Package Contents	1 – Switch 1 – Serial to RJ45 Cable 1 – Ground Cable



NETWORK CORE SWITCH

E680-32C



The E680 series are high-performance switches in compact 1U form factors. These switches come with complete system software, comprehensive protocols, and applications to facilitate the rapid service deployment and management of Layer 2 and Layer 3 networks. The series includes redundant hot-swappable power supplies, and 2+2 hot-swappable smart fans for superior processing performance and network reliability. Supporting advanced features, including MLAG, VXLAN, IPv4/IPv6, QoS, ISIS, VRRP, GRE, MPLS, etc., this switch meets next generation Metro and HCI (Hyper-Converged Infrastructure) networks.

PRODUCT HIGHLIGHTS

- > Support MLAG (Multi-Chassis Link Aggregation) for Networking Reliability
- > Support IEEE 1588v2 Precision Time Protocol (PTP TC and BC Mode)
- > 1+1 Hot-swappable Power Supplies, 2+2 Smart Fans
- > Support G.8031, G.8032, Ethernet OAM, MPLS, VPLS, VPWS, L3VPN
- > Support OSPF/OSPFv3, BGP4/BGP4+, ISIS, BFD
- > Support CLI/WEB/JSON-RPC and OVSDDB for Flexible Operation
- > Support PFC, RoCE, IPFix, Latency monitor and EFD
- > Support SSH, ACL, AAA, 802.1X, RADIUS, TACACS+, etc. for Security
- > IPv4/IPv6 Dual-stack and Tunnel for Future Network Expansion

ERROR-FREE NETWORK CONFIGURATION

- > Support VXLAN, NVGRE, GENEVE
- > Support DCBX, GRE Tunnel
- > Support PFC, ECN, DCBX
- > Realized lossless Ethernet low latency forwarding based on RDMA (Remote Direct Memory Access)
- > Support advanced features of MPLS, LDP, MPLS-L2VPN, MPLS-L3VPN, VxLAN-BGP-EVPN, IPFIX
- > Support SNMP (Managed by Zabbix) v1, v2, and v3

SECURE AND SIMPLIFIED ACCESS

- > Support IPv4/IPv6 ACL and MAC whitelisting
- > Support ARP inspection
- > Support IP source guard
- > Support IEEE802.1X RADIUS authentication, TACAS+
- > Support DHCP Server Relay/Snooping
- > Support Control Plane Protect (CoPP), Black & White List, and Rate Limit features

HIGH AVAILABILITY AND MULTI SERVICE SUPPORT

- > All ports support MLAG
- > Support LACP, VRRP, VARP, Smart Link, BFD, ERPS, G.8031, G.8032, Load-Balancing, etc.
- > IPv4/IPv6 Dual Protocol Stack
- > Unicast Routing
- > The built-in QoS capabilities and flexible queuing technologies guarantee high quality services
- > Support traffic classification based on COS/DSCP (simple classification)

Item / Quantity	Specification
Downlink Ports = 32*	100 Gig QSFP28
Console Port = 1	RJ45
Management Port = 1	RJ45
Access Port = 1	USB-A
Dimensions	17.4"W x 14.9"D x 1.7"H
Weight	19.5 lbs.
Power	Dual C13 AC or DC PSUs
Typical Power Draw	172 Watts
Max Power Draw	224 Watts
Operating Temperature	-32 to 113 F
Manufacturer Warranty	1 Year
Package Contents	1 – Switch 1 – Serial to RJ45 Cable 1 – Ground Cable

*Ports 9-24 can be used as 40 Gig ports with QSFP+ modules



NETWORK MANAGEMENT SWITCH

E530-48T4X



The E530 provides 440Gbps I/O bandwidth and 400G core bandwidth, combining a feature-rich switch core and an embedded ARM A53 CPU Core running at 800MHz/1.2GHz. The chipset supports a variety of port configurations, such as QSGMII and USXGMII-M, providing full-rate port capability from 100M to 100G in multiple configurations.

FULL-SET OF LAYER 2 SWITCHING

- > VLAN, MAC, LAG, storm control
- > VXLAN to the edge node
- > IEEE 802.1BR for Bridge Port Extension
- > DCB (PFC, ECN, ETS) feature set support for RDMA technology

FULL-SET OF LAYER 3 ROUTING

- > Support ALPM algorithm for IPv4/IPv6 dual stack
- > Wire speed NAT/NAPT/NAT-PT forwarding
- > CAPWAP tunnel encapsulation / decapsulation, fragmentation / reassembly, encryption / decryption
- > IPv4 and IPv6 conversion (6in4, 6to4, IVI, etc.)

MPLS

- > LSP, L2VPN, L3VPN, L2VPN-L3VPN Gateway
- > Segment Routing

TELEMETRY

- > Buffer/Latency monitoring
- > Hardware support for NetFlow
- > ERSPAN (Ingress Timestamp and latency)

SECURITY AND TRAFFIC MANAGEMENT

- > VLAN/MAC/Port/IP binding
- > CPU traffic control preventing DoS attacks

NETWORK TIME SYNCHRONIZATION

- > IEEE 1588v2 and Synchronous Ethernet

COMPREHENSIVE OAM/APS FEATURES

- > IEEE802.1ag CFM/Y.1731-compliant Ethernet OAM
- > G.8031/G.8032-compliant Ethernet APS
- > G.8113.1/G.8113.2-compliant MPLS-TP OAM
- > G.8131 and G.8132 compliant MPLS-TP APS
- > Automatic switching by BFD/OAM defect

PROGRAMMABILITY

- > L2-L4 Programmable Edit
- > Programmable tunnel encapsulation / decapsulation

Item / Quantity	Specification
Uplink Ports = 4	10 Gig SFP+
Downlink Ports = 48	1 Gig RJ45
Console Port = 1	RJ45
Management Port = 1	RJ45
Access Port = 1	USB-A
Dimensions	17.4"W x 14.9"D x 1.7"H
Weight	11.2 lbs.
Power	Dual C13 AC or DC PSUs
Typical Power Draw	42 Watts
Max Power Draw	55 Watts
Operating Temperature	-32 to 113 F
Manufacturer Warranty	1 Year
Package Contents	1 – Switch 1 – Serial to RJ45 Cable 1 – Ground Cable



NETWORK ACCESS SWITCH

E530-48S4X



The E530 provides 440Gbps I/O bandwidth and 400G core bandwidth, combining a feature-rich switch core and an embedded ARM A53 CPU Core running at 800MHz/1.2GHz. The chipset supports a variety of port configurations, such as QSGMII and USXGMII-M, providing full-rate port capability from 100M to 100G in multiple configurations.

FULL-SET OF LAYER 2 SWITCHING

- > VLAN, MAC, LAG, storm control
- > VXLAN to the edge node
- > IEEE 802.1BR for Bridge Port Extension
- > DCB (PFC, ECN, ETS) feature set support for RDMA technology

FULL-SET OF LAYER 3 ROUTING

- > Support ALPM algorithm for IPv4/IPv6 dual stack
- > Wire speed NAT/NAPT/NAT-PT forwarding
- > CAPWAP tunnel encapsulation / decapsulation, fragmentation / reassembly, encryption / decryption
- > IPv4 and IPv6 conversion (6in4, 6to4, IVI, etc.)

MPLS

- > LSP, L2VPN, L3VPN, L2VPN-L3VPN Gateway
- > Segment Routing

TELEMETRY

- > Buffer/Latency monitoring
- > Hardware support for NetFlow
- > ERSPAN (Ingress Timestamp and latency)

SECURITY AND TRAFFIC MANAGEMENT

- > VLAN/MAC/Port/IP binding
- > CPU traffic control preventing DoS attacks

NETWORK TIME SYNCHRONIZATION

- > IEEE 1588v2 and Synchronous Ethernet

COMPREHENSIVE OAM/APS FEATURES

- > IEEE802.1ag CFM/Y.1731-compliant Ethernet OAM
- > G.8031/G.8032-compliant Ethernet APS
- > G.8113.1/G.8113.2-compliant MPLS-TP OAM
- > G.8131 and G.8132 compliant MPLS-TP APS
- > Automatic switching by BFD/OAM defect

PROGRAMMABILITY

- > L2-L4 Programmable Edit
- > Programmable tunnel encapsulation / decapsulation

Item / Quantity	Specification
Uplink Ports = 4	10 Gig SFP+
Downlink Ports = 48	1 Gig SFP
Console Port = 1	RJ45
Management Port = 1	RJ45
Access Port = 1	USB-A
Dimensions	17.4"W x 14.9"D x 1.7"H
Weight	13.7 lbs.
Power	Dual C13 AC or DC PSUs
Typical Power Draw	58 Watts
Max Power Draw	70 Watts
Operating Temperature	-32 to 113 F
Manufacturer Warranty	1 Year
Package Contents	1 – Switch 1 – Serial to RJ45 Cable 1 – Ground Cable



NETWORK SAN CLUSTER SWITCH E530-24X2Q



The E530 provides 440Gbps I/O bandwidth and 400G core bandwidth, combining a feature-rich switch core and an embedded ARM A53 CPU Core running at 800MHz/1.2GHz. The chipset supports a variety of port configurations, such as QSGMII and USXGMII-M, providing full-rate port capability from 100M to 100G in multiple configurations.

FULL-SET OF LAYER 2 SWITCHING

- > VLAN, MAC, LAG, storm control
- > VXLAN to the edge node
- > IEEE 802.1BR for Bridge Port Extension
- > DCB (PFC, ECN, ETS) feature set support for RDMA technology

FULL-SET OF LAYER 3 ROUTING

- > Support ALPM algorithm for IPv4/IPv6 dual stack
- > Wire speed NAT/NAPT/NAT-PT forwarding
- > CAPWAP tunnel encapsulation / decapsulation, fragmentation / reassembly, encryption / decryption
- > IPv4 and IPv6 conversion (6in4, 6to4, IVI, etc.)

MPLS

- > LSP, L2VPN, L3VPN, L2VPN-L3VPN Gateway
- > Segment Routing

TELEMETRY

- > Buffer/Latency monitoring
- > Hardware support for NetFlow
- > ERSPAN (Ingress Timestamp and latency)

SECURITY AND TRAFFIC MANAGEMENT

- > VLAN/MAC/Port/IP binding
- > CPU traffic control preventing DoS attacks

NETWORK TIME SYNCHRONIZATION

- > IEEE 1588v2 and Synchronous Ethernet

COMPREHENSIVE OAM/APS FEATURES

- > IEEE802.1ag CFM/Y.1731-compliant Ethernet OAM
- > G.8031/G.8032-compliant Ethernet APS
- > G.8113.1/G.8113.2-compliant MPLS-TP OAM
- > G.8131 and G.8132 compliant MPLS-TP APS
- > Automatic switching by BFD/OAM defect

PROGRAMMABILITY

- > L2-L4 Programmable Edit
- > Programmable tunnel encapsulation / decapsulation

Item / Quantity	Specification
Uplink Ports = 2	100 Gig QSFP28
Downlink Ports = 24	10 Gig SFP+
Console Port = 1	RJ45
Management Port = 1	RJ45
Access Port = 1	USB-A
Dimensions	17.4"W x 14.9"D x 1.7"H
Weight	13.1 lbs.
Power	Dual C13 AC or DC PSUs
Typical Power Draw	44 Watts
Max Power Draw	59 Watts
Operating Temperature	-32 to 113 F
Manufacturer Warranty	1 Year
Package Contents	1 – Switch 1 – Serial to RJ45 Cable 1 – Ground Cable