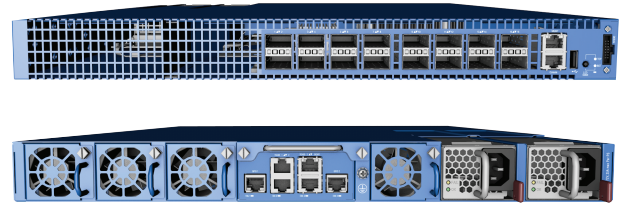


Wedge-16X 40GbE Data Center Switch Hardware Development Kit



Product Overview

The Edge-Core Wedge-16X is the first commercial product based on Facebook's Wedge design. Facebook designed Wedge as a 16x40GbE Top-of-Rack switch optimized for web-scale data centers, and submitted the design to the Open Compute Project. Edge-Core's parent company, Accton Technology, performed the design validation for Facebook and manufactures Wedge for Facebook's deployment. Edge-Core now offers the Wedge-16X as a hardware development kit to allow customers to develop software applications for the switch and evaluate Wedge-16X for deployments in their data center networks.

The Wedge-16X switch provides sixteen QSFP ports which can each run at 40GbE, or as 4x10GbE through breakout cables. The Wedge design is based on Broadcom BCM56850 Trident II 1.28 Tbps switch silicon. The Wedge CPU sub-system is the OCP-standard Panther+ Microserver module, based on Intel Atom C2550 x86 processor. The use of this standard CPU system, coupled with the BMC (baseband management processor) on the Wedge main board, enables the Wedge-16X with appropriate software to be provisioned and managed using similar tools used by data center operators for their server and application environments.

The Wedge-16X switch is available as a hardware development kit which includes the bare-metal switch with firmware providing diagnostics and OpenBMC functions. The Wedge-16X is compatible with the FBOSS agent open-source software which has been contributed by Facebook to OCP.

Key Features and Benefits

- Bare-metal TOR switch for data center fabric.
- Open hardware design contributed by Facebook to Open Compute Project.
- Compatible with 19" rack, or 21" Open Rack with Open Rack Switch Adapter
- 16 x QSFP ports in compact 1RU form factor.
- Each port supports 1 x 40GbE, or 4 x 10 GbE via breakout cables.
- Line-rate Layer 2 or Layer 3 forwarding of 1.28 Tbps full duplex.
- Broadcom XGS TridentII switch silicon enables leading data center hardware features
- OCP-standard "Group Hug" Panther+ Microserver CPU module with Intel Atom C2550 4-core x86 processor.
- Hot-swappable, load-sharing, redundant AC PSUs or -48V DC PSUs.
- 3+1 redundant, hot-swappable fans.
- Front (port) to Back (power) airflow.
- Console, management, and USB ports on switch side.
- BMC controller and OpenBMC firmware for standard system management of switch hardware functions.
- Compatible with open-source FBOSS Agent software.

Features

Ports

Switch Ports:
16 QSFP fixed ports: 40 GbE or 4 x 10 GbE per port
Total switch capacity: 16 x 40 GbE; or 64 x 10 GbE
Management ports on port side:
1 x RJ-45 serial console port to BMC
1 x RJ-45 100/1000BASE-T management port
1 x USB Type A storage port
Facebook specific debug port
Management ports on power side:
1 x RJ-45 100/1000BASE-T management port
Facebook specific ports

Key Components

Switch Silicon: Broadcom BCM56850 Trident II 1.28 Tbps CPU
CPU Module: OCP Panther+ Microserver
Intel Atom C2550 4-core 2.40GHz
8GB SO-DIMM DDR3 1600MHz ECC
120GB mSATA SSD SATA3
BMC: ASPEED AST1250

Performance

Switching Capacity: 1.28 Tbps full duplex
Forwarding Rate: 1.44 Bpps
MAC Addresses: 320K
VLAN IDs: 4 K
Jumbo frames (9216 Bytes)
L3 Routes: IPv4 64K, IPv6 20K
Packet Buffer Size: 12 MB shared buffer pool
Latency (RFC2544): 600 to 720 ns cut thru

LEDs

40G QSFP Ports: 2 LEDs per port for speed, activity
System LEDs: Power, Heartbeat
Fan LEDs: on each fan module indicating status

Supported Optics and Cables

40GBASE-CR4 DAC; 0.5m to 3m; passive and active
40GBASE-CR4 to 4 x SFP+ 10GBASE-CR DAC; 0.5 to 3 m
40GBASE-SR4: 100m over OM3 MMF, 150m OM4 MMF
40GBASE-SR4 to 4 x 10GBASE-SR: 100m OM3, 150m OM4
40GBASE-LR4: 10 km over SMF
Cat 5/6 cables for console and management ports

Physical and Environmental

Dimensions (WxDxH): 445 x 457 x 44 mm (17.5 x 18.0 x 1.75 inches)
Weight: 8.8 kg (19.56 lbs.)
Fans: 3+1 redundant, hot-swappable
Front (port) to back (power) airflow direction

Environmental

Operating Temperature: 0°C to 40°C (32°F to 104°F)
Storage Temperature: -40°C to 40°C (-40°F to 104°F)
Operating Humidity: 5% to 95% non-condensing
Storage Humidity: 5% to 95% non-condensing
Vibration: IEC 68-2-36, IEC 68-2-6
Shock: IEC 68-2-29

Power

PSUs: 2 redundant, load-sharing, hot-swappable AC or -48VDC
AC Input Voltage: 85 to 264 VAC at 50-60 Hz.
DC Input Voltage: -42 to -72 VDC.
Typical Power Consumption: 275W

Regulatory

EMI
CE Mark (EN55022 Class A, EN55024)
FCC Part 15B Class A
Safety
CB, EN 60950
UL/CUL
RoHS-6 Compliant

Software

Switch is loaded with OpenBMC
Switch is loaded with Diagnostics
Compatible with FBOSS Agent open-source software from OCP

Warranty

Please check www.edge-core.com for the warranty terms in your country. The warranty provides return-to-factory hardware replacement for a three year period in North America.

For More Information

To find out more about Edge-Core Networks products and solutions, visit www.edge-core.com

About Edge-Core Networks

Edge-Core Networks is in the business of providing innovative network solutions. In the service provider network, in the data center or in the cloud, Edge-Core Networks delivers the software and systems that transform the way the world connects. Edge-Core Networks serves customers and partners worldwide. Additional information can be found at www.edge-core.com.

EdgeCore Networks is a subsidiary of Accton Technology Corporation, the leading network ODM company. The EdgeCore data center switches are developed and manufactured by Accton.

To purchase Edgecore solutions, please contact your Edge-Core Network representatives at +886 3 563 8888 (HQ) or +1 (877) 828-CORE (877-828-2673) or authorized resellers.

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Wedge-16X Ordering Information

www.edge-core.com

Model Number	Description
Wedge-16X-AC	Wedge-16X 16-Port 40GbE QSFP switch, dual AC PSUs, port-to-power airflow, NA and EU power cords
Wedge-16X-DC	Wedge-16X 16-Port 40GbE QSFP switch, dual 400W 48V DC PSUs, port-to-power, power cords
PSU-W-AC-750-F	FRU, Wedge AC PSU, 750W, port-to-power airflow, with NA and EU power cords
PSU-W-48V-400-F	FRU, Wedge 48VDC DC PSU, 400W, port-to-power airflow, with power cords
FAN-W-F	FRU, Wedge Fan Module, port-to-power airflow