Intel® Omni-Path Fabric Edge Switches 100 Series

48 and 24 port edge switches (100 Gbps per port)

Intel® Omni-Path Fabric Edge Switches, an element of the Intel® Scalable System Framework, are part of an end-to-end product family for HPC fabrics that delivers high performance with breakthrough value. Intel® Omni-Path Architecture (Intel® OPA) builds on proven technologies from Intel® True Scale Architecture, the Cray Aries* interconnect, and open source software to provide an evolutionary on-ramp to revolutionary new fabric capabilities.

Higher Performance at Lower Cost

Intel® Omni-Path Edge Switches deliver 100 Gbps port bandwidth with latency that stays low even at extreme scale. Second generation Intel fabric switch silicon, with market leading 48 port radix, these switches can lower fabric acquisition costs by as much as 50 percent, while simultaneously reducing space and power requirements.[i] With these savings, you can potentially achieve higher total cluster performance within the same hardware budget to expand and accelerate your research.

Flexible Fabrics at Every Scale

Intel® Omni-Path Fabric Edge Switches support HPC clusters of all sizes, from entry-level systems to supercomputers with tens of thousands of server nodes. You can use these switches in

The Right Fabric for HPC
Key Benefits

Highly-integrated design reduces space, power, and cost
- 48 ports, 1U chassis
- 24 ports, 1U chassis

Optimized for high message rates and low end-to-end latency

Simple generational upgrades, with:
- Binary compatible applications
- FastFabric tools for easy installation
- All open source software

Key Features

Up to 1.2 terabytes of aggregate bandwidth

Out of band fabric management (optional)

Redundant power (optional)

Redundant cooling

Reversible air flow

Next-generation fabric innovations
- Packet Integrity Protection (PIP)
- Traffic Flow Optimization (TFO)
- Dynamic Lane Scaling (DLS)
- New 8K and 10K MTUs for improved storage efficiency

combination with Intel® Omni-Path Director Class Switches to build low-latency, multi-tier fabrics with an exceptional set of features for high-speed networking.

High Availability

Intel® Omni-Path Fabric Edge Switches provide integrated support for high availability with advanced features such as power, component-level diagnostics and alarming, and out-of-band management. Innovative features take fabric resilience and availability to new heights without sacrificing performance. Packet Integrity Protection (PIP), for example, provides high packet reliability with latency-free error checking and link-level recovery. Dynamic Lane Scaling (DLS) maintains 75 percent of link bandwidth if a physical lane fails, so HPC workloads can complete gracefully to keep project efforts on track.

SWITCH SPECIFICATIONS

- Based on Intel® Omni-Path Switch Silicon 100 Series 48 Port ASIC
- 100 Gbps per port bidirectional
- Virtual lanes: Configurable from one to eight VLs plus one management VL
- Configurable MTU size of 2 KB, 4 KB, 8 KB, or 10KB

- Maximum multicast table size: 8192 entries
- Maximum unicast table size: 49151 entries
- Supports QSFP28 Quad Small Form Factor Pluggable cabling
- Passive copper or active fiber cables

Management Features

- Management Card (Optional)
- Built-in Fabric Manager
- Subnet Management Agent (SMA)
- Performance Management Agent (PMA)
- Enables Command Line Interface and Chassis Management GUI through 10/100/1000 Base-T Ethernet
- Enables Serial Console through USB Serial Port
- Supports Embedded Subnet Manager (ESM) and Performance Manager (PM)
- Enables Network Time Protocol (NTP), SNMP/MIBs, and LDAP
- FastFabric Toolset
- Fabric Management GUI

LED status

- Twenty-four (24) or forty-eight (48) link status indicators, one per QSFP28 port (Green)
- Two (2) Ethernet indicators (Off = 10; Green = 100; Orange = 1G)
- Two (2) Chassis indicators (Green – Status; Amber - Attention)
- Two (2) Power Supply, one per supply (Green)
- One (1) Q7 Management Installed, (Green - Installed)
- One (1) External Management Capable, (Green – One or more ports can be directly connected to a Fabric Manager)
- Airflow direction (Green – front-to-back airflow)

FEATURE	100SWE48Q	100SWE48U	100SWE24Q	100SWE24U
100Gb ports	48	48	24	24
Total System Bandwidth (bi‑dir)	1.2TB/s	1.2TB/s	.6 TB/s	.6 TB/s
Dimensions (w x h x d)	17.3"x 1.72"x17.15"	17.3"x 1.72"x17.15"	17.3"x 1.72"x17.15"	17.3"x 1.72"x17.15"
Reversible Fan Modules	1	1	1	1
Mgmt. Modules	1	0	1	0
Power Supplies (Fixed) Min / AC	1/2	1/2	1/2	1/2
Power (Typ./Max) Input 100‑240 VAC 50‑60 Hz Optical Power w/ Max 3W QSFP	189/238 W (Copper) 356/408 W (All Optical)	189/238 W (Copper) 356/408 W (All Optical)	146/179 W (Copper) 231/264 W (All Optical)	146/179 W (Copper) 231/264 W (All Optical)
Weight ‑ Fully Loaded	6.7kg	6.7kg	6.2kg	6.2kg

INTEL SKU	INTEL MM#	DESCRIPTION
100SWE48QF2	948588	Intel® Omni‑Path Edge Switch 100 Series 48 Port Managed Forward 2 PSU 100SWE48QF2
100SWE48UF2	948678	Intel® Omni‑Path Edge Switch 100 Series 48 Port Forward 2 PSU 100SWE48UF2
100SWE24QF2	945654	Intel® Omni‑Path Edge Switch 100 Series 24 Port Managed Forward 2 PSU 100SWE24QF2
100SWE24UF2	945655	Intel® Omni‑Path Edge Switch 100 Series 24 Port Forward 2 PSU 100SWE24UF2
100SWE48QF1	945662	Intel® Omni‑Path Edge Switch 100 Series 48 Port Managed Forward 1 PSU 100SWE48QF1
100SWE48UF1	945663	Intel® Omni‑Path Edge Switch 100 Series 48 Port Forward 1 PSU 100SWE48UF1
100SWE24QF1	945664	Intel® Omni‑Path Edge Switch 100 Series 24 Port Managed Forward 1 PSU 100SWE24QF1
100SWE24UR1	945669	Intel® Omni‑Path Edge Switch 100 Series 24 Port Reverse 1 PSU 100SWE24UR1
100SWEQ7CN1	945775	Intel® Omni‑Path Edge Switch Management Card 100 Series 100SWEQ7CN1
100SWEIKIT1	945820	Intel® Omni‑Path Edge Switch Installation Kit 100 Series 100SWEIKIT1

Buy Intel Omni-Path Edge Switches Today

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www.aspsys.com/solutions/networking/intel-omni-path/

Intel Omni-Path Edge Switches from Aspen Systems Inc.

Aspen Systems Fabric Edge Switches by Intel
24 or 48 ports, standard QSFP28 connectors, passive copper cable support, active cable support

- 24 or 48 ports
- 100Gb/s Line Rate
- Supports Virtual Fabric Partitioning
- Scalable, Predictable Low Latency Under Load
- Multiple Virtual Lanes (VLs) per Physical Port

Aspen Systems was founded in 1982 as a privately held corporation. Our mission is to provide leading best-in-class solutions to High Performance Computing (HPC) users and administrators. We are proud to service all key market sectors including government, universities, corporations and anywhere research and science can be found. ISO 9001:2008 Certified. GSA Contract #GS-35F-0192K.

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Compliance

US/Canada

- FCC Part 15, Subpart B, Class A
- CAN ICES-3 (A)

Europe

- CISPR22
- CISPR32/EN55032
- EN55024
- EN61000-3-2
- EN61000-3-3

Japan

- VCCI, Class A

New Zealand/Australia

- AS/NZS CISPR 22, Class A

Korea

- RRA/KC (KN22, KN24), Class A

Taiwan

- BSMI (CNS 13438), Class A

Customs Union: Russia, Belarus and Kazakhstan

- GOST R IEC 60950-1
- GOST R 51318.22
- GOST 30805.24
- GOST R 51317.3.2 (Section 6, 7)
- GOST R 51317.3.3

Agency Approvals – Safety (Planned)

US/Canada

- TUV NRTL: UL 60950-1, CSA 22.1.No. 60950-1

Europe

- TUV SUD EN60950-1

International

- CB Scheme: IEC 60950-1

RoHS/REACH

- Complies with RoHS II Directive 2011/65/EU of the European Parliament
- Complies with REACH Regulation (EC) No 1907/2006

Acoustics

- Less than 7.0 Bels

Environmental Specifications

Temperature

- Operating: 0° to 40° C
- Storage: -40° to 70° C

Humidity

- Operating: 5% to 85% non-condensing
- Storage: 5% to 95% non-condensing

Altitude

- Operating: 0 – 10,000 feet (Temperature Derating 1C/175M above 900M)
- Storage: 0 – 40,000 feet

Shock

- Unpackaged: Half-sine, 2g 11ms 300 pulses total
- Packaged: 36" in free fall drop

Vibration

- UnPackaged: 5-500 Hz, 2.2 g RMS random
- Packaged: 5-500 Hz, 1.09 g RMS random

Airflow - Reversible (Variable Speed Fans)

- 70 CFM maximum at 40°C

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[i] Internal cost analysis based on a 256-node to 2048-node clusters configured with Mellanox* FDR and EDR InfiniBand* products. Mellanox component pricing from kernelsoftware.com Prices as of November 3, 2015. Compute node pricing based on Dell PowerEdge R730 server from www.dell.com. Prices as of May 26, 2015. Intel® OPA (x8) utilizes a 2-1 over-subscribed Fabric. Intel® OPA pricing based on estimated reseller pricing using projected Intel MSRP pricing on day of launch.