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. 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)
<table>
<thead>
<tr>
<th>FEATURE</th>
<th>100SWE48Q</th>
<th>100SWE48U</th>
<th>100SWE24Q</th>
<th>100SWE24U</th>
</tr>
</thead>
<tbody>
<tr>
<td>100Gb ports</td>
<td>48</td>
<td>48</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Total System Bandwidth (bi-dir) 1.2TB/s</td>
<td>1.2TB/s</td>
<td>.6 TB/s</td>
<td>.6 TB/s</td>
<td></td>
</tr>
<tr>
<td>Dimensions (w x h x d)</td>
<td>17.3&quot;x1.72&quot;x17.15&quot;</td>
<td>17.3&quot;x1.72&quot;x17.15&quot;</td>
<td>17.3&quot;x1.72&quot;x17.15&quot;</td>
<td>17.3&quot;x1.72&quot;x17.15&quot;</td>
</tr>
<tr>
<td>Reversible Fan Modules</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mgmt. Modules</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Power Supplies (Fixed) Min / AC 1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
</tr>
<tr>
<td>Power (Typ./Max) Input</td>
<td>189/238 W (Copper)</td>
<td>189/238 W (Copper)</td>
<td>146/179 W (Copper)</td>
<td>146/179 W (Copper)</td>
</tr>
<tr>
<td>100-240 VAC 50-60 Hz Optical</td>
<td>356/408 W (All Optical)</td>
<td>356/408 W (All Optical)</td>
<td>231/264 W (All Optical)</td>
<td>231/264 W (All Optical)</td>
</tr>
<tr>
<td>Power w/ Max 3W QSFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight - Fully Loaded</td>
<td>6.7kg</td>
<td>6.7kg</td>
<td>6.2kg</td>
<td>6.2kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTEL SKU</th>
<th>INTEL MM#</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>100SWE48QF2</td>
<td>948588</td>
<td>Intel® Omni-Path Edge Switch 100 Series 48 Port Managed Forward 2 PSU 100SWE48QF2</td>
</tr>
<tr>
<td>100SWE48UF2</td>
<td>948678</td>
<td>Intel® Omni-Path Edge Switch 100 Series 48 Port Forward 2 PSU 100SWE48UF2</td>
</tr>
<tr>
<td>100SWE24QF2</td>
<td>945654</td>
<td>Intel® Omni-Path Edge Switch 100 Series 24 Port Managed Forward 2 PSU 100SWE24QF2</td>
</tr>
<tr>
<td>100SWE24UF2</td>
<td>945655</td>
<td>Intel® Omni-Path Edge Switch 100 Series 24 Port Forward 2 PSU 100SWE24UF2</td>
</tr>
<tr>
<td>100SWE48QF1</td>
<td>945662</td>
<td>Intel® Omni-Path Edge Switch 100 Series 48 Port Managed Forward 1 PSU 100SWE48QF1</td>
</tr>
<tr>
<td>100SWE48UF1</td>
<td>945663</td>
<td>Intel® Omni-Path Edge Switch 100 Series 48 Port Forward 1 PSU 100SWE48UF1</td>
</tr>
<tr>
<td>100SWE24QF1</td>
<td>945664</td>
<td>Intel® Omni-Path Edge Switch 100 Series 24 Port Managed Forward 1 PSU 100SWE24QF1</td>
</tr>
<tr>
<td>100SWE24UR1</td>
<td>945669</td>
<td>Intel® Omni-Path Edge Switch 100 Series 24 Port Reverse 1 PSU 100SWE24UR1</td>
</tr>
<tr>
<td>100SWEQ7CN1</td>
<td>945775</td>
<td>Intel® Omni-Path Edge Switch Management Card 100 Series 100SWEQ7CN1</td>
</tr>
<tr>
<td>100SWEIKIT1</td>
<td>945820</td>
<td>Intel® Omni-Path Edge Switch Installation Kit 100 Series 100SWEIKIT1</td>
</tr>
</tbody>
</table>
**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