

Intel Omni-Path 1U Switches QuickSpecs

Ideal for customers deploying high-performance computing (HPC) clusters based on HPE ProLiant XL and DL servers that use Intel® Omni-Path technology.

This rack-mountable switch provides 48 QSFP28 ports. The 1U switch cost-effectively supports clusters of up to 48 servers and can serve as an edge or core switch in a larger fabric.

This fixed configuration switch is a member of the Intel® Omni-Path Fabric series of switches, delivering an exceptional set of high-speed networking features and functions.

Overview



Intel Omni-Path 1U

Standard Features

Key features

- 48 ports, each providing 100 Gbps performance
- 9.6 Tbps aggregate bandwidth
- Optimized for message rate and latency
- Multiple Virtual Lanes (VLs) per physical port
- Supports virtual fabric partitioning
- Supports adaptive routing
- Supports chassis and fabric management through a management card in the managed switch or through the Intel® Omni-Path Fabric Suite management solution. See the Management section for more information.

Features and benefits

Switch specifications

- Based on Intel® Omni-Path Switch Silicon 100 Series 48-port ASIC
- 100 Gbps per port bidirectional
- Switching capacity 9.6 Tbps
- Virtual lanes: configurable from one to eight VLs plus one management VL
- Configurable MTU sizes of 2 KB, 4 KB, 8 KB, or 10 KB
- Maximum multicast table size: 8,192 entries
- Maximum unicast table size: 49,151 entries
- Supports QSFP28 passive copper and active optical cables

Management

- Managed switch
- Pluggable Q7 Intel® Atom™ processor-based board
- Enables command line interface and chassis management GUI through 10/100/1000 Base-T Ethernet
- Enables serial console through USB serial port
- Enables Network Time Protocol (NTP), SNMP/MIBs, and LDAP
- Supports Embedded Subnet Manager (ESM) and Performance Manager (PM) for up to 100 nodes
- Unmanaged switch
- Requires a host-based Intel® Omni-Path Fabric Manager or the Fabric Manager in a managed switch for in-band switch management.

Connectors and cabling

- QSFP28 ports
- Passive copper or active optical cables

Indicators

- Per QSFP28 port status LED for link and activity
- Two (2) Ethernet indicators (off = 10; Green = 100; Orange = 1G)
- Two (2) Chassis indicators (Green = Status OK; Amber = Need attention)
- Power Supply Good indicators (Green = Good)
- Management enabled indicator
- Fabric Manager enabled indicator

Standard Features

Power Supply

- Redundant (1+1) power supplies
- Max inrush current per power supply: 15 A

Cooling

- 6 redundant fans (N+1)
- Customer selectable reverse airflow option

Warranty and support

- 3-year warranty with onsite, next-business-day response
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Configuration Information

Models

SKU

Intel Omni-Path Architecture 100Gb 48-port Unmanaged Switch	829910-B21
– 48 QSFP28 ports externally managed switch – 1U form factor – 2 power supplies (1+1 redundant) – 2 power cords, 6 ft, C13-C14 – 6 (N+1) Fans (customer selectable reverse airflow option) – 19 in rack rail kit with an adjustable mounting depth of 26–32 in – Quick Start Guide	

Notes: See Related Options for supported cables

Intel Omni-Path Architecture 100Gb 48-port Managed Switch	829911-B21
– 48-port QSFP28 managed switch - o 1U form factor – 2 power supplies (1+1 redundant) – 2 power cords, 6 ft, C13-C14 – 6 fans (N+1 redundant; customer-selectable reverse airflow option) – 19 in rack rail kit with an adjustable mounting depth of 26–32 in – Quick Start Guide	

Notes: See Related Options for supported cables

Related Options

Supported cables for Intel Omni-Path Switches

Passive Copper cables	SKU
HPE 0.5 m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B21
HPE 1 m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B22
HPE 1.5 m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B23
HPE 2 m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B24
HPE 3 m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B25
Active Optical cables	SKU
HPE 3 m 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B21
HPE 5 m 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B22
HPE 10 m 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B24
HPE 15 m 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B26
HPE 20 m 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B27
HPE 30 m 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B28

Technical Specifications

For the most up-to-date information on HPE Services, please refer to the [HPE Services – Supplemental QuickSpecs](#), which provides a comprehensive and regularly updated overview of available services.

Description

Intel Omni-Path Architecture 100Gb 48-port Unmanaged Switch

Intel Omni-Path Architecture 100Gb 48-port Managed Switch

SKU

829910-B21

829911-B21

I/O ports and slots	48 QSFP28 ports	
Additional ports and slots (Managed switch only)	– 10/100/1000 Base-T Ethernet port – 1 USB port	
Power supplies	2 power supplies (1+1 redundant)	
Fan units	6 fans (N+1 redundant)	
Physical characteristics	Dimensions	– 1.72 in (H) × 17.3 in (W) × 16.8 in (D) – 4.32 cm (H) × 43.96 cm (W) × 42.67 cm (D)
	Weight	– 6.67 kg (Unmanaged) – 14.7 lb (Unmanaged) – 7.01 kg (Managed) – 15.45 lb (Managed)
Management processor (Managed Switch only)	Q7 Intel® Atom™ processor	
Performance	Latency	≤110 ns port-to-port
	Throughput	up to 9.6 Tbps
	Maximum multicast table size	8,192 entries
	Maximum unicast table size	49,151 entries
Environment	Operating temperature	0°C to 40°C (32°F to 104°F)
	Storage temperature	-40°C to 70°C
	Operating humidity	10% to 85% non-condensing
	Storage humidity	5% to 95% non-condensing
	Operating altitude	0 to 3,048 m (0 to 10,000 ft)
	Storage altitude	0 to 12,192 m (0 to 40,000 ft)
	Acoustic	Less than 7.0 Bels (70 dB)
	Airflow	70 CFM maximum at 40°C
Electrical characteristics	Frequency	50/60 Hz
	Voltage	100–240 VAC
	Maximum power rating	238 W
Safety	US/Canada – TUV NRTL: UL 60950-1, CSA 22.1.No. 60950-1 Europe – TUV: EN60950-1 International – CB Scheme: IEC 60950-1 Customs Union: Russian Federation, Belarus and Kazakhstan – TR CU 004/2011 “On Safety of Low-Voltage Equipment”	
Emissions	US/Canada – FCC Part 15, Subpart B, Class A – CAN ICES-3 (A)/NMB-3(A)	

Technical Specifications

	Europe/International – CISPR22 – CISPR32/EN55032 – EN55024 – EN61000-3-2 – EN61000-3-3 Japan – VCCI, Class A Australia/New Zealand – AS/NZS CISPR 22, Class A Korea – RRA/KC (KN32, KN35), Class A Taiwan – BSMI (CNS 13438), Class A Customs Union: Russian Federation, 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
RoHS/REACH	– Complies with RoHS II Directive 2011/65/EU of the European Parliament – Complies with REACH Regulation (EC) No 1907/2006
Fabric Management	The host-based solution runs the Intel® Omni-Path Fabric stack on a Linux server to access and manage the fabric. It is required for fabrics with more than 100 nodes because it can use the greater memory resources and high-speed processor technology available in standard servers. The managed-switch Fabric Manager deploys all host-based Fabric Manager components as an embedded solution on the pluggable Q7 Intel® Atom™ processor board. The embedded Fabric Manager supports a maximum configuration of 100 host fabric interface (HFI) ports and fewer than 20 switch ASICs, with one ASIC per 1U switch. For small to moderate fabrics, the embedded Fabric Manager can reduce costs by using an existing switch resource. The Unmanaged Switch does not have the Q7 Intel® Atom™ processor and requires either a host-based FM or Managed Switch solution.

Summary of Changes

Date	Version History	Action	Description of Change
21-Sep-2026	Version 8	Changed	Replaced references to "HPE GreenLake" with "GreenLake" to align with current branding standards.
16-Feb-2026	Version 7	Changed	Visual rebranding only—updated typography, colors, and design elements to align with new HPE brand standards. No technical specifications or content were modified.
08-Jan-2024	Version 6	Changed	HPE Services Rebranding
15-Nov-2021	Version 5	Changed	Service and Support section was updated.
12-Jul-2021	Version 4	Changed	Related Options section was updated.
04-Dec-2017	Version 3	Changed	Added SKUs to the Related Options section.
25-Sep-2017	Version 2	Changed	Updated content throughout the QuickSpecs
06-Jun-2016	Version 1	New	Initial version of QuickSpecs for Intel Omni-Path 1U Switches.

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