

Overview

Intel Omni-Path 1U Switches

The Intel® Omni-Path 1U Switch is a rack-mountable switch with 48 QSFP28 ports. The 1U Switch cost-effectively supports a cluster of up to 48 servers, or provides an edge or core switch option for 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. The Intel Omni-Path Switch is ideal for customers who deploy high-performance computing (HPC) clusters based on HPE ProLiant XL and DL Servers using the Intel Omni-Path technology.



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
- Chassis and fabric management capable through management card (Managed Switch) or Intel® Omni-Path Fabric Suite management solution (see management section for more details)

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 size of 2 KB, 4 KB, 8 KB, or 10KB
- Maximum multicast table size: 8192 entries
- Maximum unicast table size: 49151 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 or Managed switch Intel Fabric Manager (FM) for in-band management of switch

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

Power Supply

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



Standard Features

Cooling

- Redundant 6 (N+1) Fans
- Customer selectable reverse airflow option

Warranty and support

- 3-year warranty, On Site, next business day response
-



Configuration Information

Models

Intel Omni-Path Architecture 100Gb 48-port Unmanaged Switch	829910-B21
Intel Omni-Path Architecture 100Gb 48-port Managed Switch	829911-B21
Intel Omni-Path Architecture 100Gb 48-port Unmanaged Switch	829910-B21
• 48 QSFP28 ports externally managed switch • 1U form factor • 2 (1+1) Power Supplies • 2 Power cords, 6ft, C13-C14 • 6 (N+1) Fans (customer selectable reverse airflow option) • 19" rack rail kit (Rails have adjustable depth mounting from 26"-32") • Quick Start Guide	

Notes: See Related Options for supported cables

Intel Omni-Path Architecture 100Gb 48-port Managed Switch	829911-B21
• 48 QSFP28 ports externally managed switch ◦ 1U form factor • 2 Power Supplies • 2 Power cords, 6ft, C13-C14 • 6 (N+1) Fans (customer selectable reverse airflow option) • 19" rack rail kit (Rails have adjustable depth mounting from 26"-32") • Quick Start Guide	

Notes: See Related Options for supported cables



Related Options

Supported cables for Intel Omni-Path Switches

Passive Copper cables

HPE 0.5m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B21
HPE 1m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B22
HPE 1.5m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B23
HPE 2m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B24
HPE 3m 100Gb QSFP28 Omni-Path Architecture Copper Cable	830024-B25

Active Optical cables

HPE 3M 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B21
HPE 5M 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B22
HPE 7M 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B23
HPE 10M 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B24
HPE 15M 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B26
HPE 20M 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B27
HPE 30M 100Gb QSFP28 Omni-Path Optical Power Class 2 Cable	881204-B28



Service and Support

HPE Services

No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.

<https://www.hpe.com/services>

Consulting Services

No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.

<https://www.hpe.com/services/consulting>

HPE Managed Services

HPE runs your IT operations, providing services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

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Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.

<https://www.hpe.com/services/operational>

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

<https://www.hpe.com/services/completecure>

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.

<https://www.hpe.com/services/techcare>



Service and Support

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:

<https://www.hpe.com/services/lifecycle>

For a list of the most frequently purchased services using service credits, see the [HPE Service Credits Menu](#)

Other Related Services from HPE Services:

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.

<https://www.hpe.com/services/training>

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials

HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at <https://ssc.hpe.com/portal/site/ssc/>



Service and Support

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.

<https://support.hpe.com/hpesc/public/home/signin>

Consume IT On Your Terms

HPE GreenLake edge-to-cloud platform brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake edge-to-cloud platform accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE"

<https://www.hpe.com/us/en/contact-hpe.html>

For more information

<http://www.hpe.com/services>



Technical Specifications

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

829910-B21

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

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) x 17.3 in (W) x 16.8 in (D) 4.32 cm (H) x 43.96 cm (W) x 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	8192 entries
	Maximum unicast table size	49151 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 3,048m (0 to 10,000 feet)
	Storage Altitude	0 to 12,192m (0 to 40,000 feet)
	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	238W
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"	



Technical Specifications

Emissions	US/Canada • FCC Part 15, Subpart B, Class A • CAN ICES-3 (A)/NMB-3(A) 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 Intel® Omni-Path Fabric Suite Fabric Manager (FM) solution can be deployed as either a host-based or an embedded solution for an Omni-Path 1U Switch. The host solution uses the Intel® Omni-Path Fabric stack running on a Linux Server to access and manage the fabric. The host based FM is required for managing large fabrics greater than 100 nodes, as the FM software is able to make use of the large memory resources and high speed processor technology of standard servers. The Managed Switch FM deploys all of the host based FM components in an embedded solution using the Pluggable Q7 Intel® Atom™ processor board. The maximum fabric configuration supported by the Embedded FM is 100 HFI ports involving less than 20 Switch ASICs (1 ASIC per 1U switch). For the small-to-moderate fabrics, the embedded FM provides cost savings in that the fabric is able to utilize an existing resource for the embedded FM purposes. The Unmanaged Switch does not have the Q7 Intel® Atom™ processor and requires either a host-based FM or Managed Switch solution.

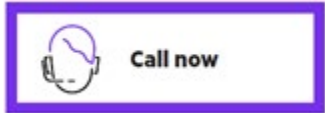
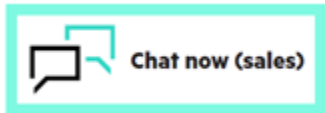
Summary of Changes

Date	Version History	Action	Description of Change
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	Add SKUs to related options section
25-Sept-2017	Version 2	Changed	Updated content throughout the QuickSpecs
06-June-2016	Version 1	New	Initial version of QuickSpecs for Intel Omni-Path 1U Switches.



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