

Overview

Mellanox InfiniBand Switch Chassis

Mellanox InfiniBand (IB) EDR Modular Switches are supported to work with HPE InfiniBand Adapters to deliver high performance connectivity for HPC clusters using HPE ProLiant XL and DL Server families. The Modular switches feature the Mellanox Switch-B™ 2 ASIC, and include three chassis with 216 ports, 324 ports, and 648 ports, respectively.

The Mellanox InfiniBand EDR Switch is ideally suited for customers who deploy high-performance clusters based on HPE ProLiant XL and DL Servers using InfiniBand technology.



Standard Features

Key features

- Modular switches for 216 ports, 324 ports, and 648 ports, respectively
- QSFP28 ports for EDR 100Gb/s per port
- Non-blocking switch throughput
- Ultra-low switch latency
- N+N redundant & hot-swappable power supplies
 - 80 gold+ and energy star certified
- Dual-core x86 CPU for management
- Backward compatibility to Mellanox FDR technology for ease of migration

Features and benefits

Switch Specifications

- Mellanox Switch-IB 2 ASIC
- Compliant with IBTA 1.21 and 1.3
- 9 virtual lanes: 8 data + management
- 256 to 4Kbytes MTU
- 4x48K entry linear forwarding data base

Management

- Dual-core x86 CPU for on-board Subnet Manager
 - Support fabrics of up to 2k nodes
- Unified Fabric Manager™ (UFM™) Agent
- Optional Mellanox Unified Fabric Manager (UFM)

Connectors and cabling

- QSFP28 ports
- Passive copper or active optical cables

Warranty and support

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

Configuration

Mellanox InfiniBand EDR Modular Switch Series

Models

Mellanox InfiniBand EDR 648-port Switch Chassis	843188-B21
Mellanox InfiniBand EDR 324-port Switch Chassis	843189-B21
Mellanox InfiniBand EDR 216-port Switch Chassis	843190-B21
Mellanox InfiniBand EDR Modular Management Board	843191-B21
Mellanox InfiniBand EDR Modular Fabric Board	843192-B21
Mellanox InfiniBand EDR 36-port Modular Line Board	843193-B21

Mellanox InfiniBand EDR 648-port Switch Chassis

843188-B21

- 28U Chassis (+ 1U Shelf)
- Up to Eighteen (18) Modular Line Boards, each with 36 QSFP28 ports
 - None included
- Up to Eighteen (18) Modular Fabric Boards
 - None included
- Up to Two (2) Modular Management Boards
 - None included; One (1) required.
- Ten (10) Power Supplies (N+N redundant)
 - Ten (10) included
 - Ten (10) PDU Power cards (C19/C20 2-meter) included
- Twenty (20) Fan Units
 - Twenty (20) included
- Rack kit and cable management kit

Mellanox InfiniBand EDR 324-port Switch Chassis

843189-B21

- 16U Chassis (+ 1U Shelf)
- Up to Nine (9) Modular Line Boards, each with 36 QSFP28 ports
 - None included
- Up to Nine (9) Modular Fabric Boards
 - None included
- Up to Two (2) Modular Management Boards
 - None included; One (1) required.
- Six (6) Power Supplies (N+N redundant)
 - Six (6) included
 - Six (6) PDU Power cards (C19/C20 2-meter) included
- Twelve (12) Fan Units
 - Twelve (12) included
- Rack kit and cable management kit

Mellanox InfiniBand EDR 216-port Switch Chassis

843190-B21

- 12U Chassis (+ 1U Shelf)
- Up to Six (6) Modular Line Boards, each with 36 QSFP28 ports
 - None included

Services

- Up to Six (6) Modular Fabric Boards
 - None included
- Up to Two (2) Modular Management Boards
 - None included; One (1) required.
- Four (4) Power Supplies (N+N redundant)
 - Four (4) included
 - Four (4) PDU Power cards (C19/C20 2-meter) included
- Eight (8) Fan Units
 - Eight (8) included
- Rack kit and cable management kit

Mellanox InfiniBand EDR Modular Management Board

843191-B21

- One (1) is required, up to two supported per switch chassis
- Hot swappable

Mellanox InfiniBand EDR Modular Fabric Board

843192-B21

- Hot swappable

Mellanox InfiniBand EDR 36-port Modular Line Board

843193-B21

- Hot swappable
- Per port status LED
- Port Error LED

NOTE: See [Related Options for supported cables](#)

Related Options

Mellanox Unified Fabric Manager (UFM) Software Licenses

Mellanox Unified Fabric Manager Advanced 1yr 24x7 Updates and Technical Support Flex License	BD571A
Mellanox Unified Fabric Manager Advanced 3yr 24x7 Updates and Technical Support Flex License	BD572A

HPE InfiniBand EDR cables

Passive Copper cables

HPE 0.5M IB EDR QSFP Copper cable	834973-B21
HPE 1M IB EDR QSFP Copper cable	834973-B22
HPE 1.5M IB EDR QSFP Copper cable	834973-B23
HPE 2M IB EDR QSFP Copper cable	834973-B24
HPE 3M IB EDR QSFP Copper cable	834973-B25

Active Optical cables

HPE 3M IB EDR QSFP Optical Cable	834972-B21
HPE 5M IB EDR QSFP Optical Cable	834972-B22
HPE 7M IB EDR QSFP Optical Cable	834972-B23
HPE 10M IB EDR QSFP Optical Cable	834972-B24
HPE 12M IB EDR QSFP Optical Cable	834972-B25
HPE 15M IB EDR QSFP Optical Cable	834972-B26
HPE 20M IB EDR QSFP Optical Cable	834972-B27
HPE 30M IB EDR QSFP Optical Cable	834972-B28

Services

Services

Intel Omni-Path Switches should have the same attached support level as the Server and Enclosure.

Protect your business beyond warranty with HPE Support Services

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement to the support for need for your IT and business. Protect your product, beyond warranty.

Connect your devices: Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77%1 reduction in down time, near 100%2 diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to Hewlett Packard Enterprise support.

1-IDC 2015

2.-HPE CSC reports 2014 – 2015

Learn more about getting connected at

www.hpe.com/services/getconnected

HPE Proactive Care* with 24x7 coverage, three year Support Service

HPE Proactive Care gives customers an enhanced call experience. When your products are connected to Hewlett Packard Enterprise, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice. This Service combines three years proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your Hewlett Packard Enterprise servers. **<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>**

HPE Foundation Care 24x7, three-year Support Service

HPE Foundation Care 24x7 gives you access to Hewlett Packard Enterprise 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. In addition, collaborative software support is included in this service that provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make Hewlett Packard Enterprise your first call to help resolve hardware or software problems. **<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>**

HPE Foundation Care

HPE Foundation Care Next Business Day connects you to Hewlett Packard

Services

NBD, three-year Support Service

Enterprise during business hours for assistance on resolving issues – This service features need based next business day hardware onsite response and software call back within two hours. In addition, Collaborative software support and provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make Hewlett Packard Enterprise your first call to help resolve hardware or software problems.

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

Parts and Materials

Hewlett Packard Enterprise 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 QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

Other related Services HPE Server Hardware Installation

Provides for the basic hardware installation of Hewlett Packard Enterprise branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

HPE Factory Express for Servers and storage

HPE Factory Express offers configuration, customization, integration and deployment services for Hewlett Packard Enterprise servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. Hewlett Packard Enterprise products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE Apollo, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAXxxx3PAR suite, XP, rackable tape libraries and configurable network switches.

HPE Technology Services Support Credits offer flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

HPE Datacenter Care

HPE Datacenter Care helps improve IT stability and security, increase the

Services

service

value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services “building blocks.” You can deploy, operate, and evolve your datacenter wherever you are on your IT journey. With HPE Datacenter Care, you benefit from a personalized relationship with Hewlett Packard Enterprise via a single point of accountability for Hewlett Packard Enterprise and others’ products. For more information, visit www.hpe.com/services/datacentercare

HPE Flexibly Capacity, a building block of HPE Datacenter Care is a pay per use model for on premise infrastructure, giving you the technology you want, the ability to manage capacity when you need it, with no upfront payment. Flexible Capacity provides the needed room to grow your environment, but only pay for actual metered use. Technology transitions with refresh can be built in, and infrastructure and services are billed monthly, enabling you to align costs to business use.

Standards and protocols

IBTA 1.2.1 and 1.3

Technical Specifications

Mellanox InfiniBand EDR 648-port Switch Chassis

843188-B21

I/O ports and slots	Eighteen (18) Slots for Line Boards, each with 36 QSFP28 ports Eighteen (18) Slots for Modular Fabric Boards	
Power supplies	Ten (10) Power Supplies (N+N redundant), hot swappable	
Fan units	Twenty (20) Fan Units (N+N redundant), hot swappable	
Physical characteristics	Dimensions	48.96 in (H) x 17.64 in (W) x 30.3 in (D) 124.4 cm (H) x 44.8 cm (W) x 77.0 cm (D)
	Weight	369.5 kg (fully configured) 815 lb (fully configured)
Performance	Latency	≤ 0.5 μs
	Throughput	up to 130 Tbps
	Linear forwarding data base	4x48K entries
Power Consumption (fully populated)	Passive cable	9161 W
	Active cable	12370 W

Mellanox InfiniBand EDR 324-port Switch Chassis

843189-B21

I/O ports and slots	Nine (9) Slots for Line Boards, each with 36 QSFP28 ports Nine (9) Slots for Modular Fabric Boards	
Power supplies	Six (6) Power Supplies (N+N redundant), hot swappable	
Fan units	Twelve (12) Fan Units (N+N redundant), hot swappable	
Physical characteristics	Dimensions	28 in (H) x 17.64 in (W) x 30.3 in (D) 71.1 cm (H) x 44.8 cm (W) x 77.0 cm (D)
	Weight	275 kg (fully configured) 606 lb (fully configured)
Performance	Latency	≤ 0.5 μs
	Throughput	up to 64 Tbps
	Linear forwarding data base	4x48K entries
Power Consumption (fully populated)	Passive cable	4939 W
	Active cable	6543 W

Mellanox InfiniBand EDR 216-port Switch Chassis

843190-B21

I/O ports and slots	Six (6) Slots for Line Boards, each with 36 QSFP28 ports Six (6) Slots for Modular Fabric Boards	
Power supplies	Four (4) Power Supplies (N+N redundant), hot swappable	
Fan units	Eight (8) Fan Units (N+N redundant), hot swappable	
Physical characteristics	Dimensions	20.96 in (H) x 17.64 in (W) x 30.3 in (D) 53.2 cm (H) x 44.8 cm (W) x 77.0 cm (D)
	Weight	200 kg (fully configured) 441 lb (fully configured)

Technical Specifications

Performance	Latency	≤ 0.5 μs
	Throughput	up to 43 Tbps
	Linear forwarding data base	4x48K entries
Power Consumption (fully populated)	Passive cable	3474 W
	Active cable	4543 W
Mellanox InfiniBand EDR Modular Management Board		843191-B21
Additional ports and slots	One (1) System reset button One (1) USB port One (1) Console port Two (2) RJ45 Ethernet management ports	
Physical characteristics	Dimensions	Plug into the management slots on the switch chassis
Mellanox InfiniBand EDR Modular Fabric Board		843192-B21
Additional ports and slots		
Physical characteristics	Dimensions	Plug into the fabric slots on the switch chassis
Mellanox InfiniBand EDR 36-port Modular Line Board		843193-B21
I/O ports and slots	Thirty-six (36) QSFP28 ports per Line Board	
Physical characteristics	Dimensions	Plug into the line-board slots on the switch chassis
Environment	Operating temperature	0°C to 45°C (32°F to 113°F)
	Non-Operating temperature	-40°C to 70°C
	Operating humidity	10% to 85%
	Operating Altitude	-60 to 2000m
	Acoustic	ISO 7779 ETS 300 753
Electrical characteristics	Frequency	47/63 Hz, single phase AC
	Voltage	180 - 265 VAC
Safety	US/Canada: cTUVus EU: EN60950-1 International: IEC60950-1	
Emissions	USA: FCC, Class A Canada: ICES, Class A EU: EN55022, Class A EU: EN55024, Class A EU: EN61000-3-2, Class A EU: EN61000-3-3, Class A Japan: VCCI, Class A	
Others	RoHS-6 compliant	
Management	The Management Board comes with a dual-core x86 CPU for the onboard subnet manager, enabling simple, out-of-the-box fabric bring-up for up to 2k nodes.	

The InfiniBand fabric can also be managed by the Mellanox Unified Fabric Manager™. The

Technical Specifications

Mellanox Unified Fabric Manager Advanced (UFM) is a powerful platform for managing scale-out computing environments. UFM enables data center operators to efficiently provision, monitor and operate the modern data center fabric.

UFM runs on a server and is used to monitor and analyze Mellanox fabrics health and performance. UFM also can be used to automate provisioning and device management tasks. For example, UFM can communicate with devices, to reset or shut down ports or devices, perform firmware and software upgrades, etc. UFM's extensive API enables it to easily integrate with existing management tools for a unified cluster view. UFM also includes the ability to save historical information, to send alerts to external systems and to activate user made scripts based on system events.

Summary of Changes

Date	Version History	Action	Description of Change
6-June-2016	Version 1	Created	Initial version of QuickSpecs for Mellanox InfiniBand Switch Chassis



Sign up for updates



**Hewlett Packard
Enterprise**

© Copyright 2016 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

To learn more, visit <http://www.hpe.com/networking>

c05069315 - 15598 - Worldwide - V1 - 6-June-2016