

Overview

HPE InfiniBand Options for HPE BladeSystems c-Class

Hewlett Packard Enterprise supports 56 Gbps Fourteen Data Rate (FDR) and 40Gbps Quad Data Rate (QDR) InfiniBand (IB) products that include mezzanine Host Channel Adapters (HCA) for server blades, dual mode InfiniBand or Ethernet mezzanine adaptors, switch blades for c-Class enclosures, and rack switches and cables for building scale-out solutions. This QuickSpecs focuses on mezzanine adaptors for server blades, and InfiniBand switch blades for c-Class enclosures; for details on the InfiniBand rack switches, standup PCI Express HCAs and FlexLOM Adaptors for HPE ProLiant and Apollo servers, as well as InfiniBand cables, please refer to the HPE InfiniBand for HPE ProLiant and Apollo servers QuickSpecs

at: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440>

The following InfiniBand products based on Mellanox technology are available for the HPE BladeSystem c-Class from HPE:

- HPE InfiniBand FDR/EN 10/40Gb 2-Port 544+M Adapter for HPE BladeSystem c-Class (Gen 9)
- HPE InfiniBand QDR/EN 10Gb 2-Port 544+M Adapter for HPE BladeSystem c-Class (Gen 9)
- HPE InfiniBand FDR 2-Port 545M Adapter for HPE BladeSystem c-Class (Gen8 and Gen9)
- HPE BLc FDR IB Managed Switch for HPE BladeSystem c-Class
- HPE BLc FDR IB Switch for HPE BladeSystem c-Class

The 544+M Mezzanine adapters for HPE BladeSystem c-Class are based on the Mellanox ConnectX-3 Pro technology. The 544+M Mezzanine adapters utilize the PCI Express 3.0 x8 interface. The 544+M Mezzanine adapters are dual function adapters that are capable of support dual InfiniBand ports or dual Ethernet ports when connected to supported Ethernet switches in c7000 enclosure (a mix mode of one InfiniBand port and one Ethernet port is not supported on 544+M Mezzanine adapters). The 544+M Mezzanine adapter are supported on HPE BladeSystem c-Class Gen 9 blade servers.

The 545M Mezzanine Adapter for HPE BladeSystem c-Class is based on the Mellanox Connect-IB technology. The 545M adapter utilizes the PCI Express 3.0 x16 interface. Two ports provide more than 100Gb/s of throughput in dual port FDR InfiniBand mode and low latency for performance-driven server and storage clustering applications. Additional application acceleration is achieved with an improvement in message rate compared with previous generations of QDR InfiniBand cards.

NOTE: The 544+M and 545M Mezzanine Adapters are only supported in the HPE BLc7000 Platinum Enclosures.

InfiniBand host stack software (driver) is required to run on servers connected to the InfiniBand network. For mezzanine HCAs based on Mellanox technologies, Hewlett Packard Enterprise supports Mellanox OFED Driver on Linux 64-bit operating systems, and Mellanox WinOF on Microsoft Windows.

For the latest information on Mellanox OFED software, please refer

to: http://www.mellanox.com/content/pages.php?pg=software_overview_ib&menu_section=34.

The HPE BLc FDR IB Switch for HPE BladeSystem c-Class is a double wide switch for the HPE BladeSystem c7000 Platinum enclosure. It is based on the Mellanox Switch X technology. The FDR IB switch blade has 16 downlink ports to connect up to 16 server blades in the c7000 enclosure, and 18 QSFP uplink ports for inter-switch links or to connect to external servers. All ports are capable of supporting 56Gbps (FDR) bandwidth. A subnet manager has to be provided; see the paragraph on subnet managers for more details.

The HPE BLc FDR Managed IB Switch for HPE BladeSystem c-Class is a double wide switch for the HPE BladeSystem c7000 Platinum enclosure. It is based on the Mellanox Switch X technology. The FDR IB switch blade has 16 downlink ports to connect up to 16 server blades in the c7000 enclosure, and 18 QSFP uplink ports for inter-switch links or to connect to external servers. All ports are capable of supporting 56Gbps (FDR) bandwidth. The switch contains an integrated management module that is capable of managing a cluster of up to 648 nodes. An InfiniBand fabric consists of one or more InfiniBand switches connected via inter-switch links. The most commonly deployed fabric topology is a fat tree or its variations. A subnet manager is required to manage and control an InfiniBand fabric. The subnet manager functionality can be provided by either the HPE BLc FDR Managed IB Switch or a rack-mount InfiniBand switch with an embedded fabric manager (aka internally managed switch) or host-based subnet manager

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software on a server connected to the fabric. OpenSM is a host-based subnet manager that runs on a server connected to the InfiniBand fabric. Mellanox OFED software stack includes OpenSM for Linux, and Mellanox WinOF includes OpenSM for Windows. For comprehensive management and monitoring capabilities, Mellanox Unified Fabric Manager™ Advanced (UFM) is recommended for managing the InfiniBand fabric based on Mellanox/ InfiniBand switch products and Mellanox based mezzanine HCA.

An embedded fabric manager is available on Mellanox internally managed 36-port FDR switch, and modular FDR and QDR switches. Please refer to: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440> for information about InfiniBand rack mount switches.

HPE supports InfiniBand copper and fiber optic cables with QSFP to QSFP connectors. The QSFP to QSFP QDR copper cables range from 1M to 7M for HCA to switch, or inter-switch links at QDR speed. The QSFP to QSFP FDR copper cables range from 0.5M to 3M for HCA to switch, or inter-switch links at FDR speed. The QSFP to QSFP FDR optical cables range from 3M to 30M for HCA to switch, or inter-switch links at FDR speed.

Please refer to: <https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04154440> for more details on supported InfiniBand cables.

What's New

- HPE InfiniBand FDR/EN 10/40Gb 2-Port 544+M Mezzanine Adapter for HPE BladeSystem c-Class
 - Mellanox Dual Function ConnectX-3 Pro technology
 - Dual port FDR InfiniBand or 10/40G Ethernet
 - PCI Express 3.0 x8

- HPE InfiniBand QDR/EN 10Gb 2-Port 544+M Mezzanine Adapter for HPE BladeSystem c-Class
 - Mellanox Dual Function ConnectX-3 Pro technology
 - Dual port QDR InfiniBand or 10Gb Ethernet
 - PCI Express 3.0 x8

Models

Mellanox CX-3 Pro Dual Function Mezzanine Adapters	<p>HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+M Adapter 764282-B21</p> <p>HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+M Adapter 764283-B21</p> <p>NOTE: Supported on - HPE ProLiant BL460c Gen 9</p> <p>NOTE: Designed for use with HPE BLc7000 Platinum Enclosures. If used with HPE BLc7000 enclosure part numbers 507014-B21, 507015-B21, 507016-B21, 507017-B21 and 507019-B21 must be installed in mezz slot 1. Not supported on earlier enclosures.</p> <p>For firmware release notes of HPE InfiniBand QDR/ED 10Gb 2-Port 544+M Adapter, please visit the support website then select your operating system.</p> <p>For firmware release notes of HPE InfiniBand FDR/EN 10/40Gb 2-Port 544+N Adapter, please visit the support website then select your operating system.</p>
Mellanox Connect-IB InfiniBand Mezzanine Adapter	<p>HPE InfiniBand FDR 2-port 545M Adapter 702213-B21</p> <p>NOTE: Supported on - HPE ProLiant BL460c Gen 8 & Gen 9, HPE ProLiant BL465c Gen 8, HPE ProLiant BL660c Gen 8 & Gen 9, HPE ProLiant WS460c Gen 8 & Gen 9</p> <p>NOTE: Designed for use with HPE BLc7000 Platinum Enclosures. If used with HPE BLc7000 enclosure part numbers 507014-B21, 507015-B21, 507016-B21, 507017-B21 and 507019-B21 must be installed in mezz slot 1. Not supported on earlier enclosures.</p> <p>For firmware release notes of HPE InfiniBand FDR 2-Port 545M Adapter, please visit the support website then select your operating system.</p>
Mellanox Software License	<p>Mellanox Unified Fabric Manager Advanced 1yr 24x7 Updates and Technical Support Flex License BD571A</p> <p>Mellanox Unified Fabric Manager Advanced 3yr 24x7 Updates and Technical Support Flex License BD572A</p>
Mellanox IB switch blades and options	<p>HPE 4X FDR InfiniBand Switch Module for c-Class BladeSystem 648312-B21</p> <p>NOTE: The HPE BLc FDR IB Switches are only supported on the HPE BladeSystem c7000 Enclosures P/N's: 681840-B21, 681842-B21, 681844-B21, 507014-B21, 507015-B21, 507016-B21, 507017-B21 and 507019-B21.</p> <p>NOTE: Please see the HPE BladeSystem c7000 Enclosure QuickSpecs for additional information at: https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04229580 (Worldwide)</p>

Standard Features

Product Features

- **InfiniBand mezzanine HCAs based on Mellanox Connect-3 Pro technology for Gen 9 blades**
 - HPE InfiniBand QDR/EN 10Gb 2-Port 544+M Adapter (764282-B21)
 - Mellanox ConnectX-3 Pro technology
 - PCI Express 3.0 x8
 - Dual-port QDR InfiniBand
 - Dual-port 10 Gb Ethernet
 - HPE InfiniBand FDR/EN 10/40Gb 2-Port 544+M Adapter (764283-B21)
 - Mellanox ConnectX-3 Pro technology
 - PCI Express 3.0 x8
 - Dual port FDR InfiniBand in HPE BLc7000 Platinum Enclosures
 - Dual-port QDR InfiniBand
 - Dual-port 40 Gb Ethernet
 - Dual-port 10 Gb Ethernet
 - Support Mellanox OFED Linux driver stack and Microsoft Windows Server
 - For firmware release notes, please visit [the support website](#) for part number 764282-B21 and [the support website](#) for part number 764283-B21, then select your operating system.
- **InfiniBand mezzanine HCAs based on Mellanox Connect-IB technology for Gen 8 & Gen 9 blades**
 - HPE InfiniBand FDR 2-Port 545M Adapter (702213-B21)
 - Mellanox Connect-IB technology
 - Dual port FDR InfiniBand
 - PCI Express 3.0 x16 interface for increased throughput
 - Improved message rate
 - Designed for use with HPE BLc7000 Platinum enclosures
 - Support Mellanox OFED Linux driver stack r
For firmware release notes, please visit [the support website](#) then select your operating system.
- **InfiniBand switch blades based on Mellanox technology**
 - HPE BLc FDR IB Switch for HPE BladeSystem c-Class
 - Double wide switch blade for the Platinum c7000 enclosure with 16 downlink ports to connect server blades via the midplane, and 18 QSFP unlink ports for the inter-switch links or to connect to external servers. All ports are capable of supporting 56Gbps (FDR) bandwidth. All uplink ports support copper and fiber optic cables. One version of the switch (648312-B21) is externally managed, i.e. a subnet manager has to be provided on the fabric (see the subnet manager discussion above). The other version of the switch (648311-B21) contains a management module and can run the subnet manager.

Performance

Bandwidth:

- All ports on FDR HCA cards and switch are capable of supporting 56Gbps signaling rate, with a peak data rate of 52 Gbps in each direction.
- All ports on QDR HCA card and switch are capable of supporting 40Gbps signaling rate, with a peak data rate of 32 Gbps in each direction.

Scalability and Reliability

Standards support:

- The 544+M Mezzanine Adapters: PCI Express revision 3.0 x8 compliant
 - The 545M Mezzanine Adapter: PCI Express revision 3.0x16 compliant
 - IBTA version 1.2 compatible
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Standard Features

Operating systems support

The 544+M series devices configured as IB only mode, or Ethernet only mode are supported on MLNX_OFED 3.1-1.0.3 on the following Linux operating systems:

- **RHEL:** 6.5; 6.6; 6.7; 7.0; 7.1
- **CentOS:** 6.5; 6.6; 6.7; 7.0; 7.1
- **SLES:** 11 SP1; SP2; SP3; SP4; 12
- **OEL:** 6.3; 6.4; 6.5; 6.6; 6.7; 7.0; 7.1
- **Ubuntu:** 12.04; 14.04; 14.10; 15.04

The 544+M series devices configured as IB only mode or Ethernet only mode are supported on WinOF 5.10 on the following Windows operating systems:

- **Windows Server 2012 R2 (x64 only)**
- **Windows Server 2012 (x64 only)**
- **Windows Server 2008 R2 (x64 only)**

The 544+M series devices configured as Ethernet only mode (with VMware 4.15.2.0 or VMware 1.9.10-0) are also supported in the following virtualized environments:

- **ESXI** 6.x
- **ESX** 5.5
- **ESX** 5.1

The 545M adapter is supported on MLNX_OFED 3.1-1.0.3 on the following Linux operating systems:

- **RHEL:** 6.5; 6.6; 6.7; 7.0; 7.1
- **CentOS:** 6.5; 6.6; 6.7; 7.0; 7.1
- **SLES:** 11 SP1; SP2; SP3; SP4; 12
- **OEL:** 6.3; 6.4; 6.5; 6.6; 6.7; 7.0; 7.1
- **Ubuntu:** 12.04; 14.04; 14.10; 15.04

Interconnect Bays on c-Class enclosure

HPE IB switch blades are designed to fit into the double wide switch bays on the c-Class enclosures. Depending on the mezzanine connectors used for IB HCA mezzanine cards, the IB switch blade has to be inserted into corresponding interconnect bays.

- The FDR switch may be installed in interconnect bays 3 and 4, 5 and 6, 7 and 8 in the HPE BLc7000 Platinum enclosure (P/N's: 681840-B21, 681842-B21, 681844-B21).
- The FDR switch must be installed in interconnect bays 3 and 4 when used with enclosure P/N's: 507014 -B21, 507015-B21, 507016-B21, 507017-B21 and 507019-B21
- Other enclosure part numbers do not support FDR switches.
- At QDR speeds Interconnect bays 3 and or 5 and 6 or 7 and 8 can be used when installed in the HPE BladeSystem c7000 Enclosures P/N's: 681840-B21, 681842-B21, 681844-B21, 507014 -B21, 507015-B21, 507016-B21, 507017-B21 and 507019-B21.

InfiniBand Fabric Management

Auto-negotiation/self-discovery:

InfiniBand FDR or QDR ports support auto-negotiation down to lower frequencies. For example, external uplink ports of a FDR switch blade will negotiate down to QDR or DDR speed if they are connected to a device which can only operate at those speeds.

Self-discovery is supported by subnet manager.

Management Support:

Mellanox OFED includes drivers and utilities to configure and manage the HCA in a Linux environment and Mellanox WinOF includes drivers and utilities to configure and manage the HCA in the Microsoft Windows environment.

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InfiniBand fabric has to be set up with a subnet manager: see the subnet manager discussion above.

Warranty

Hewlett Packard Enterprise branded hardware options qualified for BladeSystem c-Class and p-Class servers are covered by a global limited warranty and supported by HPE Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners. The Hewlett Packard Enterprise branded hardware option diagnostic support and repair is available for one year from date of purchase, or the length of the server they are attached to, whichever is greater. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HPE Pointnext operational services or customized service agreements.

Service and Support

Service and Support

HPE Technology Services

HPE Technology Services offers you consultants and support experts to solve your most complex infrastructure problems. We help keep your business running, boost availability and avoid downtime.

Protect your business beyond warranty with HPE Pointnext operational services

When you buy HPE Options, it's also a good time to think about what level of service you may need. HPE Pointnext operational services provide total care and support expertise with committed response choices designed to meet your IT and business need.

HPE Foundation Care services deliver scalable support-packages for Hewlett Packard Enterprise industry-standard servers and software. You can choose the type and level of service that is most suitable for your business needs. If you are running business critical environments, Hewlett Packard Enterprise offers Proactive Care. These services help you deliver high levels of application availability through proactive service management and advanced technical response.

Here is the support service recommendation from the Foundation Care and Proactive Care portfolio. For customized support service solution, Hewlett Packard Enterprise can work with you to tailor a service solution for your unique support requirements using broader services portfolio of Foundation Care and Proactive Care.

Recommended Services

Recommended HPE Pointnext operational services for optimal satisfaction with your HPE product

Hewlett Packard Enterprise recommends Proactive Care for your BladeSystem servers, enclosures and components to prevent problems with proactive advice and assistance, resolve issues and rapidly recover by connecting to The Hewlett Packard Enterprise enhanced call experience and advanced technical expertise

HPE ProLiant 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. <https://h20195.www2.hpe.com/v2/getpdf.aspx/5981-9356EN.pdf>

Related Services

HPE Proactive Select Service

Provides a flexible way to purchase HPE best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. <https://h20195.www2.hpe.com/v2/getpdf.aspx/4AA2-3842ENW.pdf>

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 quick-specs, 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.

Related Options

Cabling Options	FDR Cables	
	HPE 0.5M FDR Quad Small Form Factor Pluggable InfiniBand Copper Cable	670759-B21
	HPE 1M FDR Quad Small Form Factor Pluggable InfiniBand Copper Cable	670759-B22
	HPE 1.5M FDR Quad Small Form Factor Pluggable InfiniBand Copper Cable	670759-B23
	HPE 2M FDR Quad Small Form Factor Pluggable InfiniBand Copper Cable	670759-B24
	HPE 3M FDR Quad Small Form Factor Pluggable InfiniBand Copper Cable	670759-B25
	HPE 3 Meter InfiniBand FDR QSFP V-series Optical Cable	808722-B21
	HPE 5 Meter InfiniBand FDR QSFP V-series Optical Cable	808722-B22
	HPE 7 Meter InfiniBand FDR QSFP V-series Optical Cable	808722-B23
	HPE 10 Meter InfiniBand FDR QSFP V-series Optical Cable	808722-B24
	HPE 12 Meter InfiniBand FDR QSFP V-series Optical Cable	808722-B25
	HPE 15 Meter InfiniBand FDR QSFP V-series Optical Cable	808722-B26
	HPE 20 Meter InfiniBand FDR QSFP V-series Optical Cable	808722-B27
	HPE 30 Meter InfiniBand FDR QSFP V-series Optical Cable	808722-B28
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HPE Ethernet Interconnect Modules	HPE 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem	538113-B21
	Mellanox SX1018HP Ethernet Switch for c-Class BladeSystem	689638-B21

Technical Specifications

Compliance	Mezzanine:	HPE 544+M, 545M, PCI Express 3.0, ROHS-R6		
	Switches:	IBTA version 1.2 compatible ROHS-R6		
General Specifications	Communications Processor	Mezzanine:	The 544+M: Mellanox ConnectX-3 Pro HPE The 545M: Mellanox Connect-IB	
		FDR switch:	Mellanox Switch X	
	Dimensions (LxW)	Mezzanine HCA:	HPE Type A 3.5 x 3.9 in	
Power and Environmental Specifications	Operating	Temperature	Mezzanine HCA:	32° to 131° F (0° to 55° C)
			Switch module:	32° to 104° F (0° to 40° C)
	Humidity (non-condensing)	Mezzanine HCA:	5% to 85%	
		Switch module:	5% to 85%	
	Power requirement	Mezzanine HCAs:	HPE InfiniBand QDR/EN 10Gb 2-Port 544+M Adapter: typical 7.2W, max 9.2W HPE InfiniBand FDR/EN 10/40Gb 2-Port 544+M Adapter: typical 8.3W, max 11.0W HPE InfiniBand FDR 2-Port 545M Adapter: typical 12.5, max 14.7W	
	Switch blades:	FDR switch: 150W @ 12V		
Emissions Classifications	HCA and Switches:	FCC CFR 47 Part 15 Class A CISPR 22 Class A ICES-003 Class A VCCI Class A ACA CISPR 22 Class A		
	Switches:	MIC Korea "EMC Registration Regulation" Class A		

Summary of Changes

Date	Version History	Action	Description of Change
07-May-2018	Version 29	Changed	Overview, Models, Standard Features, Service and Support, and Related Options sections were updated.
		Removed	OBS SKU was deleted: 648311-B21
23-Oct-2017	Version 28	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
06-Mar-2017	Version 27	Changed	Overview, Models, Standard Features, and Technical Specifications sections were updated.
		Removed	Obsolete SKUs were deleted: 644160-B21, 644161-B22, 489184-B21, 505959-B21, 670760-B21, 670760-B22, 670760-B23, 670760-B24, 670760-B25, 670760-B26, 670760-B27, 670760-B28, 516733-B21, QL470A. SKUs for DDR/QDR Cables removed per no longer supported: 644160-B21, 644161-B22, 489184-B21, 505959-B21, 670760-B21, 670760-B22, 670760-B23, 670760-B24, 670760-B25, 670760-B26, 670760-B27, 670760-B28, 516733-B21.
19-Feb-2016	Version 26	Changed	Overview, Models, Standard Features, Related Options, and Technical Specifications sections were updated.
		Added	SKUs added in Models and Related Options sections: 764282-B21, 764283-B21, 808722-B21, 808722-B22, 808722-B23, 808722-B24, 808722-B25, 808722-B26, 808722-B27, 808722-B28.
		Removed	Obsolete SKUs were deleted: BD570A, BD569A, BD573A, BD574A, 583210-B21, 505958-B21, 498386-B23, 498386-B24, 498386-B25, 498386-B26, 498386-B27, 498386-B28, 438030-B21.
18-Apr-2014	Version 25	Changed	Changes made in Service and Support section.
20-Feb-2014	Version 24	Changed	Changes were made to correct the North America version.
18-Feb-2014	Version 23	Changed	Changes were made in Overview, Models and Related Options sections.
10-May-2013	Version 22	Removed	Models: Removed TE078A and 590643-B21 from the section. Related Options: Removed Mellanox Software Licenses section.
		Added	Models: Added BD569A, BD570A, BD571A and BD572A
14-Dec-2012	Version 21	Removed	Removed At A Glance
		Added	Added the Product Features section.
13-Aug-2012	Version 20	Changed	Changes were made in Overview, Models and Related Options sections.
06-Mar-2012	Version 19	Changed	Changes were made throughout the QuickSpecs.
22-Jun-2011	Version 18	Removed	HPE DDR IB Dual-port Mezzanine HCA for BladeSystem c-Class and mentions of StorageWorks were removed.
22-Apr-2011	Version 17	Changed	Operating systems support was completely revised Notes were added to the Introduction Mellanox Fabric IT Fabric Manager Per Node Right To Use License was added to Mellanox InfiniBand mezzanine HCA cards and options
05-Apr-2011	Version 16	Changed	Part number for QLogic InfiniBand Fabric Suite Fabric Flexible License was revised in QLogic IB switch blade and options.
05-Oct-2010	Version 15	Changed	Performance, Scalability and Reliability and InfiniBand Fabric Management were combined into Standard Features and Warranty was added Service and Support was added

Summary of Changes

21-May-2010	Version 14	Removed	Mellanox Fabric IT Mgr Per Node RTU and Voltaire Unified Fabric Mgr Per Node RTU were removed from Mellanox IB Switch blades and options.
22-Jan-2010	Version 13	Changed	HPE BLc 4X QDR IB Switch for HPE BladeSystem c-Class was revised in the Models section.
16-Nov-2009	Version 12	Changed	Changes were made throughout the QuickSpecs.
18-Sep-2009	Version 11	Changed	Changes were made throughout the QuickSpecs.
05-Jun-2009	Version 10	Changed	Changes made within the Overview section and the description for Model 450717-B21 was changed.
03-Apr-2009	Version 9	Changed	The QuickSpecs was completely rewritten.
15-Sep-2008	Version 8	Changed	Changes were made throughout the entire QuickSpecs including adding new model numbers 489183-B21 and 410398-B21.
02-May-2008	Version 7	Changed	Changes were made within the QuickSpecs including, updating Management Support in the InfiniBand Fabric Management section and adding What's New to the Overview section and Voltaire GridVision BladeFM to the Models section.
14-Nov-2007	Version 6	Changed	This QuickSpecs was completely revised.
20-Jul-2007	Version 5	Changed	Temperature information was corrected in the Technical Specifications section. A 0 had mistakenly been added at the end of all temperatures instead of the degree symbol.
11-May-2007	Version 4	Changed	Changes made throughout the QuickSpecs except for the Performance, Additional Features and Technical Specifications sections.
03-Nov-2006	Version 3	Changed	Changed "c-Class BladeSystems" to "BladeSystems c-Class" throughout the QuickSpecs. NOTE that the title has also changed.
29-Sep-2006	Version 2	Changed	In the MODELS section, made changes to 410533-B21, 409377-B21 and 410398-B21.
25-Sep-2006	Version 1	Created	New QuickSpecs



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