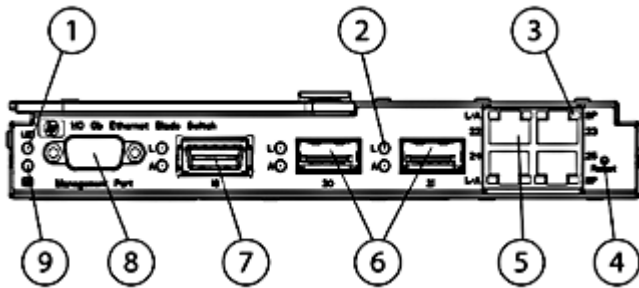


### Overview

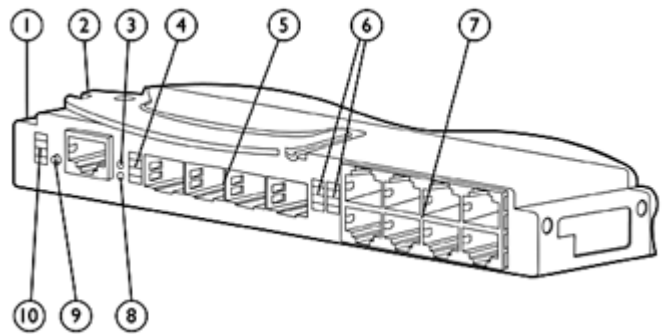
To connect your BladeSystem to outside networks and storage, HP offers a variety of options to support your familiar standards such as Ethernet, Fibre Channel and InfiniBand. The built-in Virtual Connect architecture includes a 5 Terabit backplane, supports 4 redundant fabrics at once and includes 8, high-performance interconnect bays. All interconnect options are hot-pluggable and can be installed in pairs for full redundancy.

### Ethernet Switch Modules



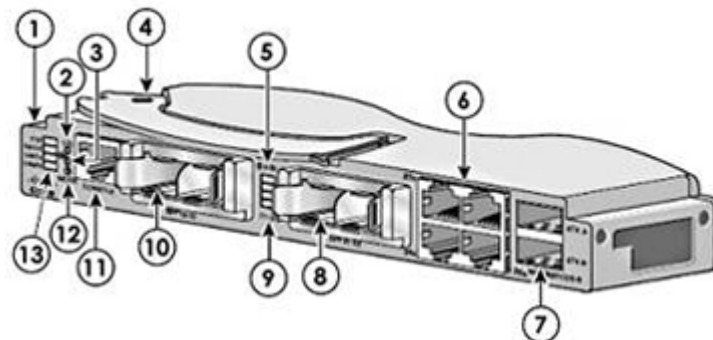
HP 1:10Gb Ethernet BL-c Switch

1. UID LED
2. Link Activity LEDs
3. Speed LEDs
4. Reset Button
5. RJ-45 1Gb Uplink Ports
6. 10Gb XFP Module Cages
7. 10Gb CX4 Uplink Port
8. DB-9 Serial Management Port
9. Health LED



Cisco Catalyst Blade for 3020

1. Switch Module
2. Release latch
3. UID LED
4. SFP Module Port LED
5. SFP Module Ports for SX/LX Fiber
6. Gigabit Ethernet Port LEDs
7. Gigabit Ethernet RJ-45 Ports
8. Health LED
9. Mode Button
10. Switch LED Panel

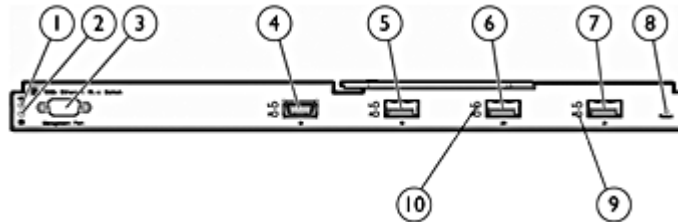


Cisco Catalyst Blade Switch 3120 Series

1. Switch Module
2. UID LED
3. Health LED
4. Slot for Cisco Twin Gigabit Module or X2 Transceiver module.
5. Slot for Cisco Twin Gigabit Module or X2 Transceiver module.
6. Slot for Cisco Twin Gigabit Module or X2 Transceiver module.
7. Slot for Cisco Twin Gigabit Module or X2 Transceiver module.
8. Slot for Cisco Twin Gigabit Module or X2 Transceiver module.
9. LEDs for ports 21 -22
10. Slot for Cisco Twin Gigabit Module or X2 Transceiver module
11. Slot for Cisco Twin Gigabit Module or X2 Transceiver module.
12. Slot for Cisco Twin Gigabit Module or X2 Transceiver module.
13. Slot for Cisco Twin Gigabit Module or X2 Transceiver module.

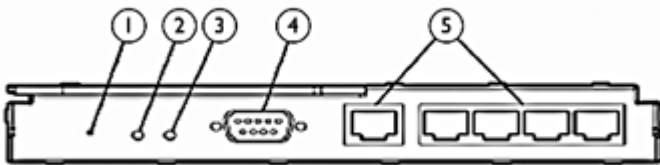
### Overview

- |  |                             |
|--|-----------------------------|
| 4. Release latch                       | 11. Console Port            |
| 5. LEDs for ports 19 -20               | 12. Mode Button             |
| 6. Gigabit Ethernet RJ-45 Ports 23 -26 | 13. Switch System LED Panel |
| 7. StackWise Ports                     |                             |



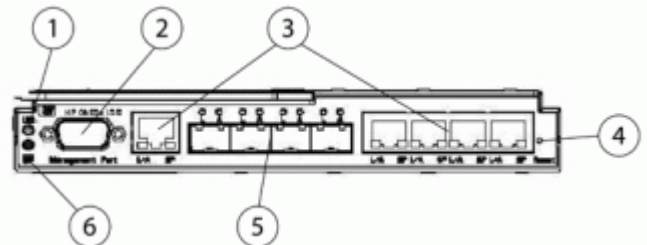
HP 10Gb Ethernet BL-c Switch

- |                                |                          |
|--------------------------------|--------------------------|
| 1. UID LED                     | 6. 10GbE XFP Module Cage |
| 2. Health LED                  | 7. 10GbE XFP Module Cage |
| 3. DB-9 Serial Management Port | 8. Reset Button          |
| 4. 10GbE XFP Module Cage       | 9. Activity LED          |
| 5. 10GbE XFP Module Cage       | 10. Link LED             |



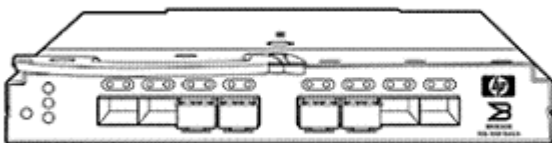
HP GbE2c Ethernet Blade Switch

1. Reset Button
2. Health LED
3. UID LED
4. DB-9 Serial Management Port
5. RJ-45 1Gb Uplink Ports

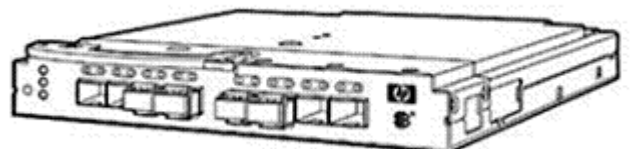


HP GbE2c Layer 2/3 Ethernet Blade Switch for c-Class BladeSystem

1. UID LED
2. DB-9 Serial Management Port
3. RJ-45 1Gb Uplink Ports
4. Reset Button
5. SFP module cages for optional Fiber Uplinks
6. Health LED



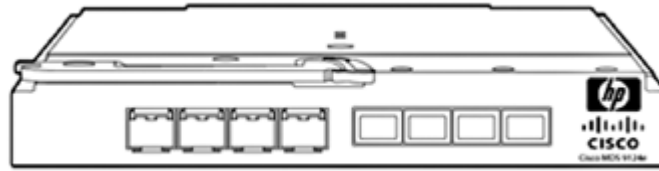
Brocade 8Gb SAN Switch for HP BladeSystem c-Class



Brocade 4Gb SAN Switch for HP c-Class BladeSystem

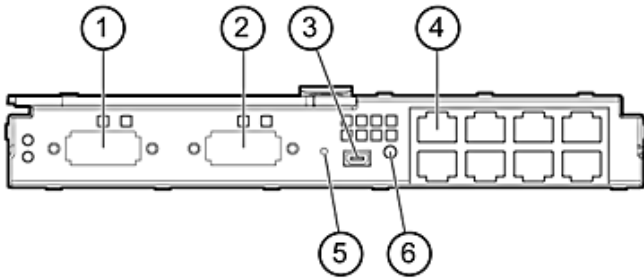
### Overview

Brocade 8Gb SAN Switch



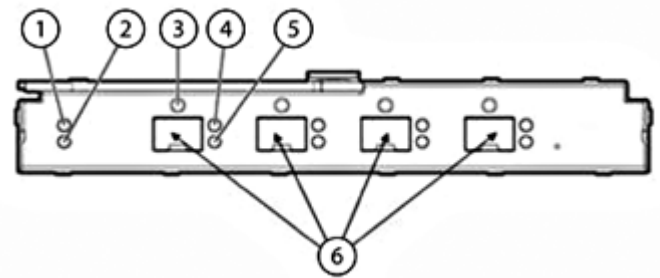
Cisco MDS 9124e Fabric Switch for HP c-Class BladeSystem

Virtual Connect Modules



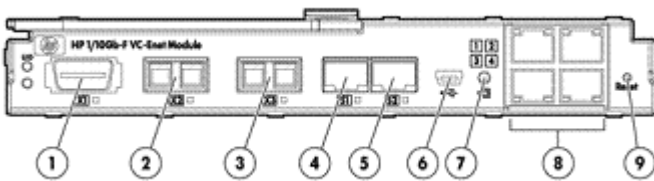
HP 1/10Gb Virtual Connect Ethernet Module for c-Class BladeSystem

1. X1 10GBASE-CX4 port
2. X2 10GBASE-CX4 port
3. USB 2.0 connector (covered, for future use)
4. Ports 1-8 (10/100/1000BASE-T)
5. Reset button (recessed)
6. Next button



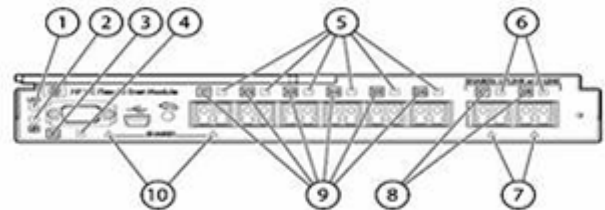
HP 4Gb Virtual Connect Fibre Channel Module for c-Class BladeSystem

1. UID Indicator
2. Module Health Indicator
3. Port Configuration Status Indicator
4. Link Status Indicator
5. Port Activity Indicator
6. Ports 1-4 (4Gb Fibre Channel)



HP 1/10Gb-F Virtual Connect Ethernet Module for c-Class BladeSystem

1. 10GBASE-CX4 port
2. 10GBASE Fiber XFP port
3. 10GBASE Fiber XFP port
4. 1000BASE-X Fiber SFP port
5. 1000BASE-X Fiber SFP port



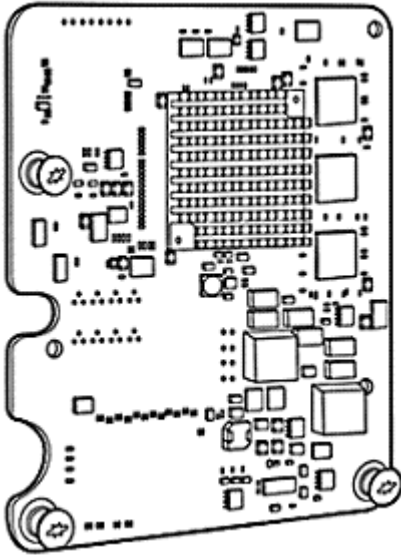
HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem

1. Module locator UID
2. Module status indicator
3. 10Gb CX4 Backlit port number and status indicator
4. 10Gb CX4 link indicator
5. Link indicator

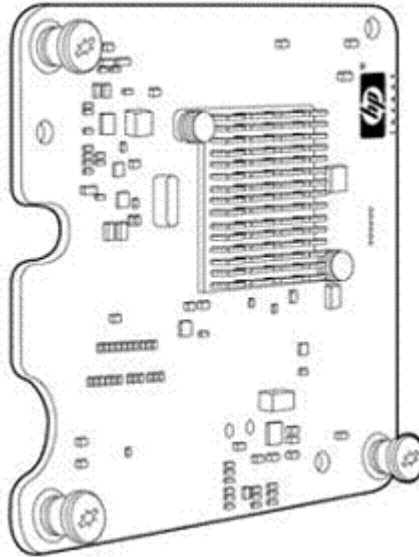
### Overview

6. USB Management Port
7. Next button
8. Ports 1-4 (10/100/1000BASE-T)
9. Reset button (recessed)
6. Link indicator
7. Active multiplexed port indicator
8. Backlit port number and status indicator LED
9. Backlit port number and status indicator LED
10. Active multiplexed port indicator

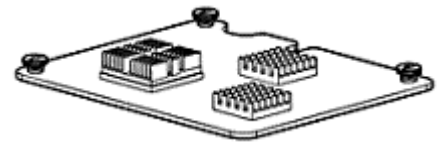
### Mezzanines and Adapters



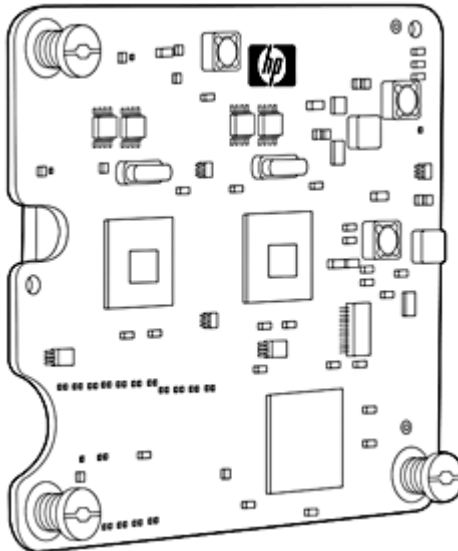
HP NC512m Dual Port 10GbE  
Multifunction BL-c Adapter



HP NC382m Dual Port 1GbE  
Multifunction BL-c Adapter

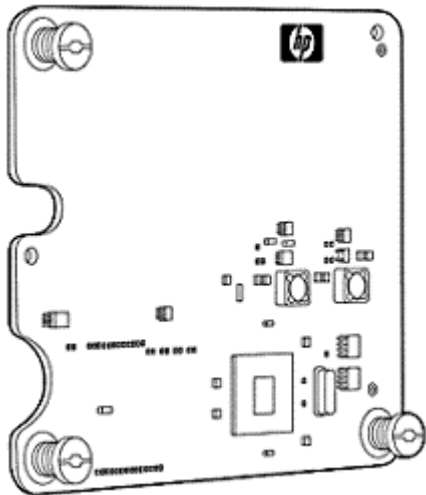


HP NC373m PCI Express Dual Port  
Multifunction Gigabit Server Adapter

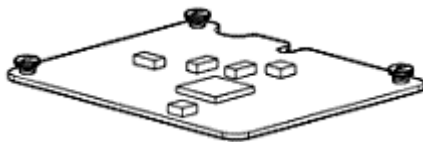


HP NC364m Quad Port 1GbE BL-c Adapter

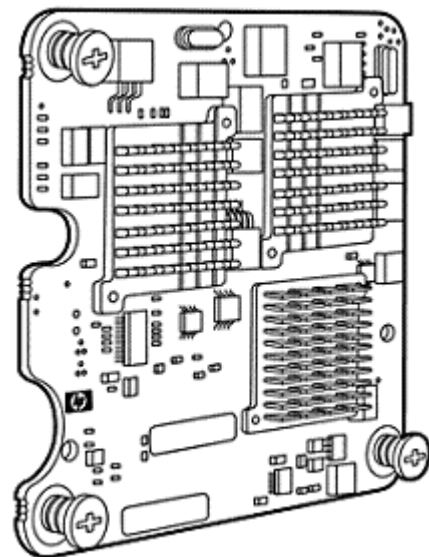
### Overview



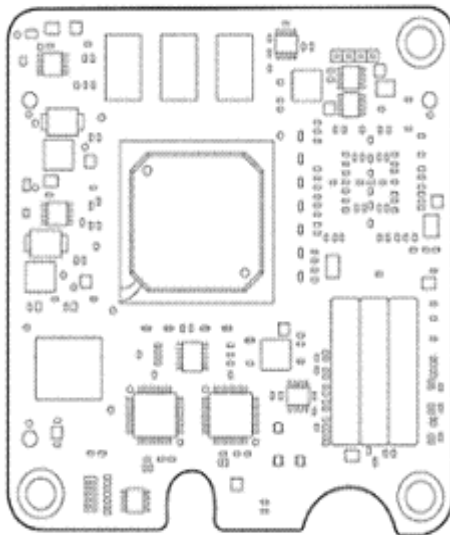
HP NC360m Dual Port 1GbE BL-c Adapter



HP NC326m PCI Express Dual Port 1Gb Server Adapter

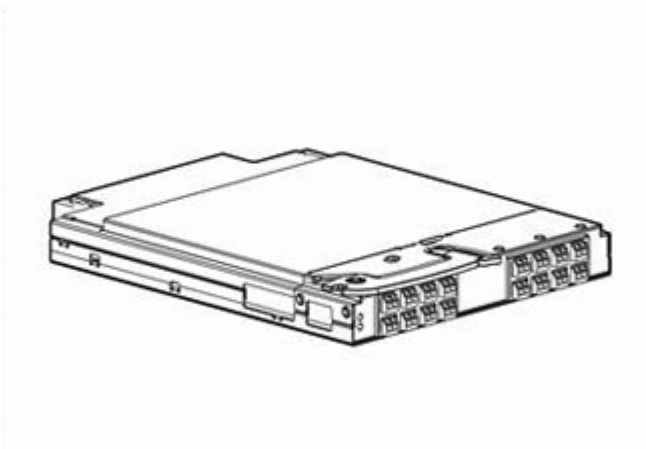


HP NC325m PCI Express Quad Port Gigabit Server Adapter

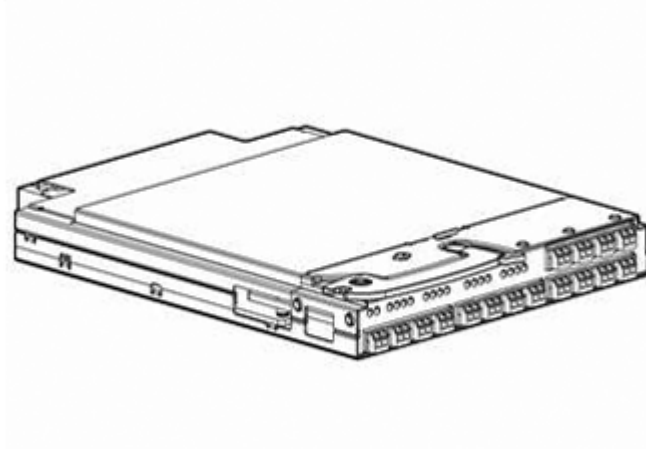


QLogic QMH4062 1GbE iSCSI Adapter

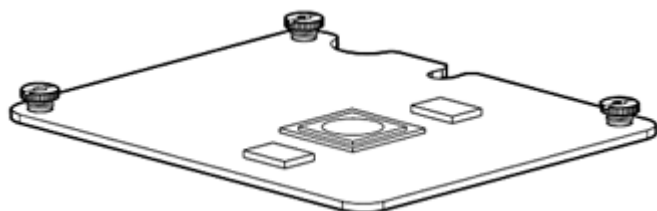
### Overview



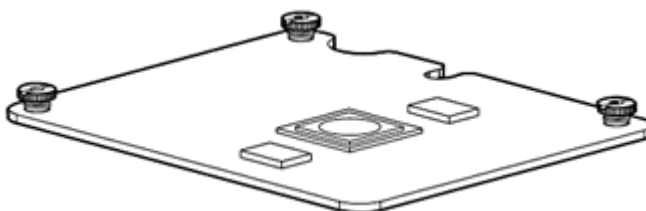
HP 1Gb Ethernet Pass-Thru Module



HP 4Gb FC Pass-Thru Module



QLogic QMH2462 4Gb FC HBA



Emulex LPe1105-HP 4Gb FC HBA

### What's New

- Addition of HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem

### At A Glance

**NOTE:** This document covers the HP BladeSystem c-Class Interconnects Components only. For more information on HP ProLiant and Integrity c-Class Server Blades and HP BladeSystem c-Class Enclosures please see the following QuickSpecs:

- HP ProLiant c-Class Server Blade QuickSpecs:  
<http://h18004.www1.hp.com/products/blades/components/c-class-bladeservers.html>  
HP Integrity c-Class Server Blade QuickSpecs:  
<http://h18004.www1.hp.com/products/blades/components/c-class-integrity-bladeservers.html>
- HP BladeSystem c3000 Enclosure QuickSpecs:  
[http://h18000.www1.hp.com/products/quickspecs/12790\\_na/12790\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html)  
HP BladeSystem c7000 Enclosure QuickSpecs:  
[http://h18000.www1.hp.com/products/quickspecs/12810\\_na/12810\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html)
- **Warranty:**
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. 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 HP Care Pack services or customized service agreements
  - Server Blade Interconnect Limited Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support. Additional information regarding worldwide limited warranty and technical support is available at:  
<http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>



### Overview

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#### Switch Modules

##### HP 10Gb Ethernet BL-c Switch

- Provides sixteen 10GbE downlinks along with four 10GbE uplinks (XFP) make this switch the perfect choice for any bandwidth intensive application.
- A robust set of industry standard Ethernet Layer 2 switching and Layer 3 routing functions, QOS, security and high availability features.
- Dramatically reduces cabling, power and cooling requirements compared to stand-alone switches or pass-thru modules, while providing over 34Gb of non blocking uplink bandwidth to handle the most demanding applications.
- A combination of excellent performance which includes low latency, wire speed performance for Layer 2 and Layer 3 packets and low power consumption makes the HP 1:10Gb Ethernet BL-c Switch an ideal solution for any large data center environment.

##### HP 1:10 Gb Ethernet BL-c Switch

- Provides sixteen 1Gb downlinks, four 1Gb uplinks along with 3 10Gb uplinks (CX4, XFP) and a 10Gb cross-connect.
- A robust set of industry standard Ethernet Layer 2 switching and Layer 3 routing functions, QOS, security and high availability features.
- Dramatically reduces cabling, power and cooling requirements compared to stand-alone switches or pass-thru modules, while providing over 34Gb of non blocking uplink bandwidth to handle the most demanding applications.
- A combination of excellent performance which includes low latency, wire speed performance for Layer 2 and Layer 3 packets and low power consumption makes the HP 1:10Gb Ethernet BL-c Switch an ideal solution for any large data center environment.

##### Cisco Catalyst Blade Switch 3120 Series

- Provides sixteen internal 1Gb downlinks
- Up to four uplinks can be optionally configured as fiber SX/LX links
- Designed to fit seamlessly into existing Cisco networks.
- Two uplinks can optionally be configured as internal cross-connects

##### Cisco Catalyst 3020 Blade Switch

- Provides sixteen internal 1Gb downlinks and eight 1Gb RJ-45 copper uplinks.
- Up to four uplinks can be optionally configured as fiber SX/LX links.
- Designed to fit seamlessly into existing Cisco networks.
- Two uplinks can optionally be configured as internal cross-connects.

##### HP GbE2c Ethernet Blade Switch for c-Class BladeSystem (GbE2c)

- Provides sixteen internal downlinks, five uplinks and two internal cross-connects.
- Provides a full set of industry standard Gigabit Ethernet Layer 2 features.
- Dramatically reduces cabling, power and cooling requirements compared to stand-alone switches or pass-thru modules, allowing you to realize the full cost saving capabilities of the HP c-Class BladeSystem

##### HP GbE2c Layer 2/3 Ethernet Blade Switch for c-Class BladeSystem (GbE2c L2/3)

- Provides sixteen internal downlinks, five uplinks and two internal cross-connects.
- Up to four uplinks can be optionally configured as fiber SX links
- Provides a full set of industry standard Gigabit Ethernet Layer 2 switching and layer 3 routing features
- Dramatically reduces cabling, power and cooling requirements compared to stand-alone switches or pass-thru modules, allowing you to realize the full cost saving benefits of the HP c-Class BladeSystem.

##### Brocade 8Gb SAN Switch for HP BladeSystem c-Class

- Enables support of virtualized environments and other emerging technologies through high-speed technology that doubles the performance of the current storage network. Both internal and external facing ports auto-sense lower bandwidth components for flexibility and investment protection (2, 4, or 8 Gbps).
- Includes connection speed support for all ports to provide a high-performance system with aggregate bandwidth of up to 384 Gbps (24 ports x 8 Gbps x 2 for full duplex).
- Support for up to a single trunk made up of all eight SAN ports for a total of up to 64 Gbps balanced throughput.

### Overview

#### Brocade 4Gb SAN Switch for HP c-Class BladeSystem

- Enables organizations to better manage data flows and meet service level agreements while maintaining optimized application performance in virtual environments with new optional Adaptive Networking services, including Quality of Service Traffic Prioritization, Preferred Path Traffic Isolation, Top Talkers, and Ingress Rate Limiting.
- Employs N\_Port ID Virtualization (NPIV), an ANSI T11 standard, to enable interoperability with other SAN fabrics and eliminate domain considerations while improving SAN scalability.
- Designed to scale as business needs dictate with the option of a 12-port model and a 12-port upgrade license, as well as a 24-port and 24-port Power Pack+ models.
- An embedded Fibre Channel switch, delivering high performance, value, and high-availability for HP BladeSystem c-Class customers who desire the benefits of a SAN solution in a hot-pluggable design supporting redundant configurations.
- Up to eight external facing ports auto-sense lower bandwidth components for greater flexibility and investment protection (4, 2, or 1 Gbps).
- Employs N\_Port ID Virtualization (NPIV), an ANSI T11 standard, to enable interoperability with supported SAN fabrics and to eliminate domain considerations for improving SAN scalability via Brocade Access Gateway technology.
- Designed to scale as business needs dictate with the option of a 12-port model and a 12-port upgrade license, as well as a 24-port and 24-port Power Pack models
- IT organizations can lower costs, minimize deployment time, increase performance, and significantly simplify their environments through the integration of 4 Gbps Fibre Channel switching with the HP BladeSystem c-Class.

#### Cisco MDS 9124e Fabric Switch for HP c-Class BladeSystem

- An embedded Fibre Channel switch, delivering high performance, value, and high-availability for HP BladeSystem c-Class customers who desire the benefits of a SAN solution in a hot-pluggable design supporting redundant configurations.
- Up to eight external facing ports auto-sense lower bandwidth components for greater flexibility and investment protection (4, 2, or 1 Gbps).
- Designed to scale as business needs dictate with the option of a 12-port model and a 12-port upgrade license, as well as a 24-port model.
- Simplifies deployment while optimizing core edge fabrics with support for virtual output queuing, flexible buffer credit allocation, Port Channels, Fabric Shortest Path First (FSPF), and more.
- New N-Port Virtualizer with FlexAttach (SAN-OS v3.3(1a) and later) employs industry-standard N-Port Virtualization technology to eliminate domain count concerns, enable fabric interoperability, and enables the flexibility to move or replace servers without impact to the SAN connections.
- Support for up to 16 VSANs per switch
- Offers an extensive security framework to protect highly sensitive data crossing today's enterprise network



### Overview

#### Virtual Connect Modules

##### HP Virtual Connect Flex-10 10Gb Ethernet Modules for the c-Class BladeSystem

- HP Flex-10 technology significantly reduces infrastructure costs by increasing the number of NICs per connection without adding extra blade I/O modules, and reducing cabling uplinks to the data center network. The HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem is an innovative, new class of integrated interconnects from HP.

##### HP 1/10Gb Virtual Connect Ethernet Modules for the c-Class BladeSystem

- Supports up to 4 FlexNIC connections per 10Gb link
- Fine tune each FlexNIC speed from 100Mb to 10Gb based on the application needs.
- The simplest, most flexible connection to your Fiber and copper Ethernet networks.
- A new class of blade interconnect that simplifies server connections by cleanly separating the server enclosure from LAN, simplifies networks by reducing cables without adding switches to manage, and allows you to change servers in just minutes, not days.

##### HP 4Gb Virtual Connect Fibre Channel Module for the c-Class BladeSystem

- An innovative, new class of integrated interconnects from HP.
- Simplest, most flexible connection to your SAN fabrics.
- A new class of blade interconnect that simplifies server connections by cleanly separating the server enclosure from SAN, simplifies SAN fabrics by reducing cables without adding switches to the domain, and allows you to change servers in just minutes, not days.
  - An innovative, new class of integrated interconnects from HP.

#### Mezzanines and Adapters

##### Ethernet Mezzanine Cards

- The QLogic QMH4062 1GbE iSCSI Adapter is a dual port fully integrated Gigabit Ethernet iSCSI target mezzanine optimized for iSCSI traffic from an c-Class ProLiant server. It is an alternative to less integrated iSCSI offerings and often more costly non TCP/IP implementations. Designed for ultimate performance, the QMH4062 provides full stateful offloading of iSCSI and TCP/IP traffic for both Microsoft Windows and Linux. The adapter supports iSCSI boot certification for VMware ESX Server 3.5 and ESXi 3.5. The QMH4062 is IPv6 compliant providing an end-to-end IPv6 solution when using either a Cisco Catalyst Blade Switch 3120 for HP with the IPv6 software upgrade or the Ethernet Pass-Thru.
- The NC512m is a dual port 10 Gigabit Ethernet network server adapter supporting stateful TCP offloading. It offers the highest bandwidth available in a ProLiant Ethernet c-Class adapter. Two NC512m adapter is supported on all ProLiant c-Class servers in mezzanine slot 2 or 3 (full height servers) and slot 2 (half height servers) providing up to sixty-four (64) 10 Gigabit Ethernet adapter ports per c7000 enclosure and thirty-two (32) per c3000 enclosure.
- The NC382m adapter is supported on all HP BladeSystem ProLiant c-Class servers in all mezzanine slots. Multiple adapters can be installed per server.
- The NC373m is a dual port Multifunction Gigabit Ethernet adapter supporting TOE (TCP/IP Offload Engine) for Microsoft Windows and accelerated iSCSI (Internet Small Computer System Interface) The Multifunction capabilities permit a unified fabric combining accelerated networking, storage, and clustering over a single network connection.
- The HP NC364m is a quad port network adapter providing four Gigabit Ethernet ports on a single card saving valuable server mezzanine slots for other purposes. The x4 PCI Express NC364m is supported on both HP Integrity and ProLiant c-Class servers in all mezzanine slots.
- The HP NC360m is a dual port 1 GbE BL-c network adapter providing two Gigabit Ethernet ports on a single mezzanine card. The NC360m is designed for applications requiring additional Gigabit Ethernet ports than those provided on the server.
- Like the NC360m, the NC326m is a dual port Gigabit Ethernet adapter designed for applications requiring additional Gigabit Ethernet ports than those provided on the server. The NC326m has a Broadcom controller where as the NC360m has an Intel controller giving customer a choice of the network controller manufacturer.
- Like the NC364m, the NC325m is a quad port Gigabit Ethernet adapter providing the highest port density available for BladeSystem servers in a single adapter. The NC325m , as well as the

### Overview

NC364m, are ideal for virtualization, security, server consolidation, network segmentation, and other ProLiant server applications requiring maximum throughput and port density. The NC325m has a Broadcom controller where as the NC364m has an Intel controller.

**NOTE:** For additional information on the BladeSystem Ethernet adapter mezzanine options, see: <http://www.hp.com/servers/networking>

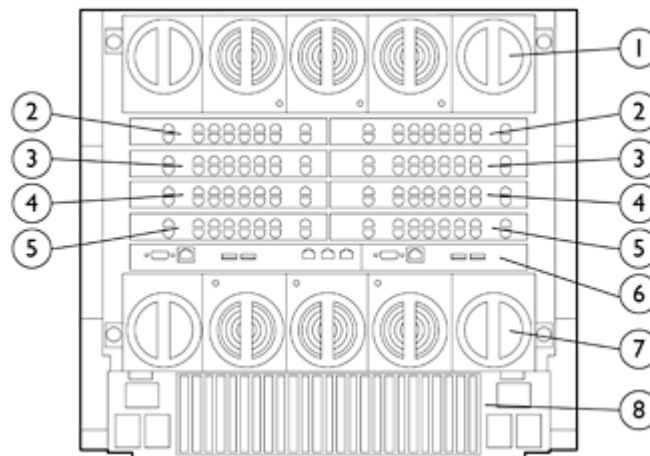
#### Pass Thru Modules

- HP Ethernet and Fibre Channel Pass-Thru Modules provide transparent, 1:1 port connectivity between the Server and an external switch.
- The Fibre Channel Pass-Thru Module includes 16 short wave SFP transceivers.

#### Host Bus Adapters

- The QLogic QMH2462 4Gb FC HBA Adapter provides the c-Class BladeSystem with two 4Gb Fibre Channel ports for fast and reliable SAN connectivity. Through the implementation of a SAN with the HP BladeSystem, customers can achieve improved data availability, easily scale capacity, and realize management cost savings from consolidating disk resources. Fibre Channel capability is achieved using a QLogic FC Mezzanine HBA specifically designed for HP c-Class BladeSystem. The HP BladeSystem is optimized for HP StorageWorks and compatible with third party storage vendors.
- The Emulex LPe1105-HP dual port PCI Express Fibre Channel HBA provides reliable, high-performance 4 Gb/s connectivity, enabling high-availability to scalable storage in order to meet the needs of the most demanding applications and environments. Based on the same field-proven ASIC, firmware, and driver technology as Emulex's LPe1150 HBA, the Emulex LPe1105-HP is fully driver compatible with all Emulex HBAs. As a centralized management suite, HBAnyware™ incorporates agent technology that provides discovery, reporting and management of local and remote HBAs.

### HP BladeSystem c-Class Enclosures



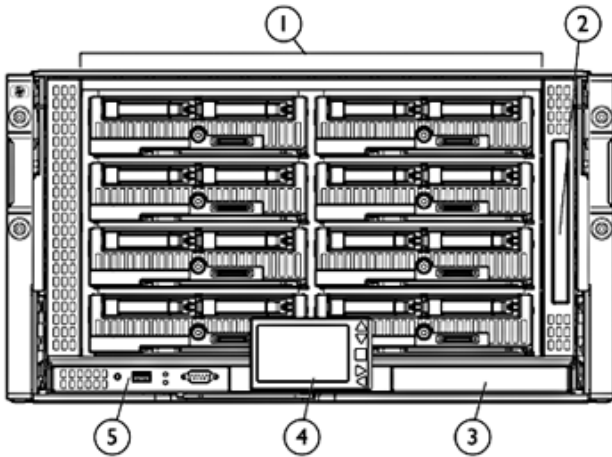
HP BladeSystem c7000 Enclosure - Rear View showing Interconnect Bays

- |                          |                           |
|--------------------------|---------------------------|
| 1. Upper Fan System      | 5. Interconnect Bays 7/8  |
| 2. Interconnect Bays 1/2 | 6. On Board Administrator |
| 3. Interconnect Bays 3/4 | 7. Lower Fan System       |
| 4. Interconnect Bays 5/6 | 8. Rear Power Complex     |

# QuickSpecs

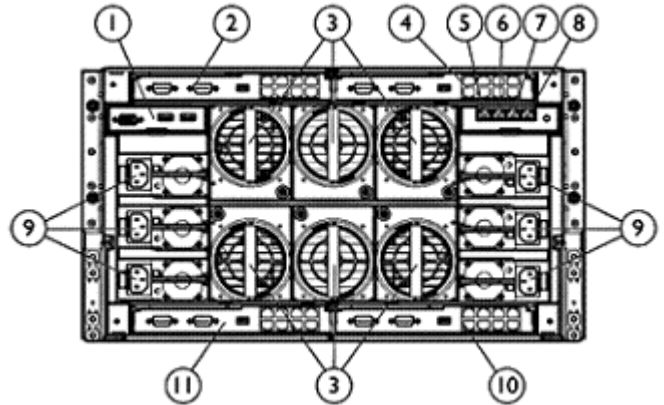
## HP BladeSystem c-Class Interconnect Components

### Overview



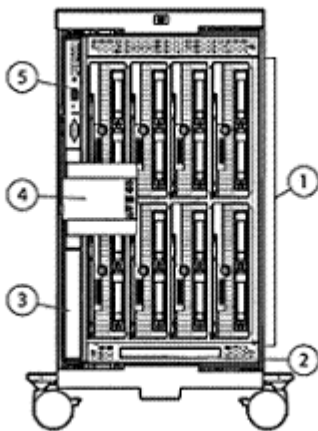
HP BladeSystem c3000 Enclosure - Rack - Front View

1. Device Bays 1 thru 8
2. Enclosure DVD Drive
3. Standby Onboard Administrator (reserved for Future)
4. Insight Display
5. Active Onboard Administrator



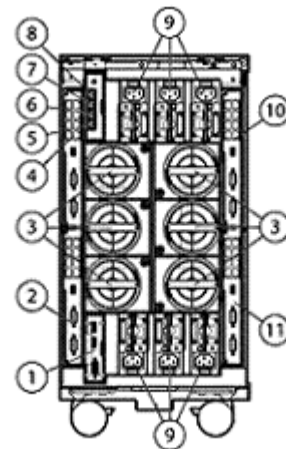
HP BladeSystem c3000 Enclosure - Rack - Rear View

1. Local KVM interface (reserved for future)
2. Interconnect Bay 1
3. Active Cool Fans
4. Interconnect Bay 2
5. Enclosure Up-link and Service Port
6. Enclosure Down-link
7. iLO/Onboard Administrator Port
8. iLO/Onboard Administrator Port 2 (reserved for future)
9. Power Supplies
10. Interconnect Bay 4
11. Interconnect Bay 3



HP BladeSystem c3000 Enclosure - Tower - Front View

1. Device Bays 1 thru 8
2. Enclosure DVD Drive
3. Standby Onboard Administrator (reserved for Future)
4. Insight Display
5. Active Onboard Administrator



HP BladeSystem c3000 Enclosure - Tower - Rear View

1. Local KVM interface
2. Interconnect Bay 1
3. Active Cool Fans
4. Interconnect Bay 2
5. Enclosure Up-link and Service Port
6. Enclosure Down-link
7. iLO/Onboard Administrator Port

### Overview

8. iLO/Onboard Administrator Port 2 (reserved for future)
9. Power Supplies
10. Interconnect Bay 4
11. Interconnect Bay 3

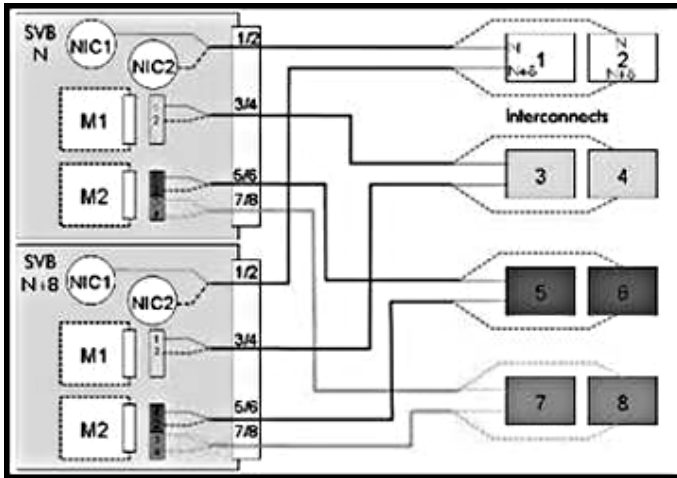
### Standard Features (HP BladeSystem c-Class Interconnect Components)

#### Mezzanines

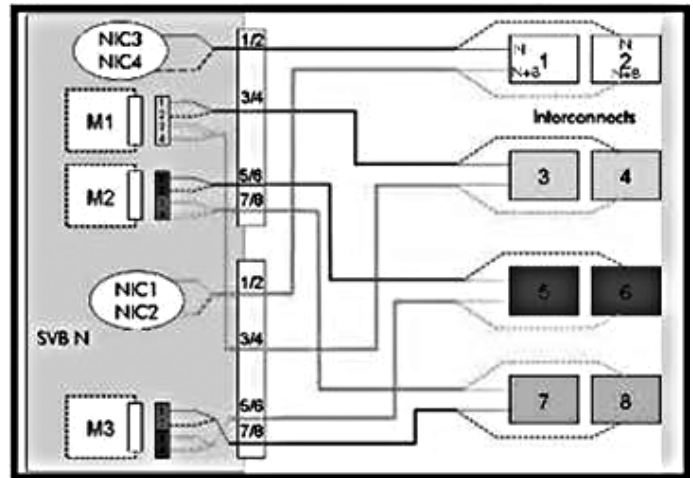
##### Port Mapping

Port mapping differs slightly between full height and half height server blades due to the support for additional Mezzanine cards on the full height version.

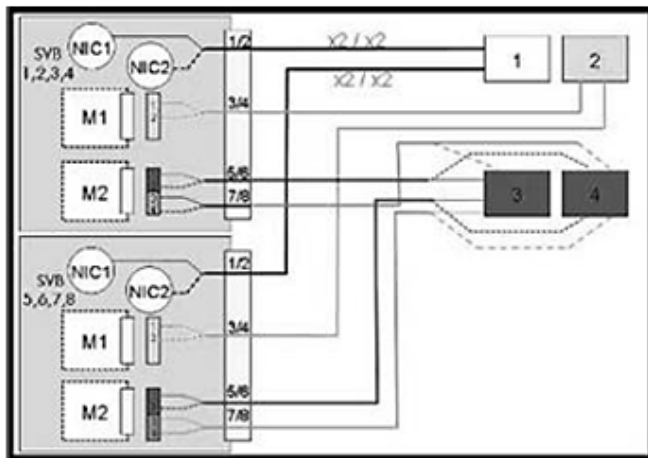
HP has simplified the processes of mapping Mezzanine ports to switch ports by providing intelligent management tools via the Onboard Administrator and HP Insight Manager Software. The Onboard Administrator Guide, Enclosure Setup and Installation Guide provides detailed information on port mapping.



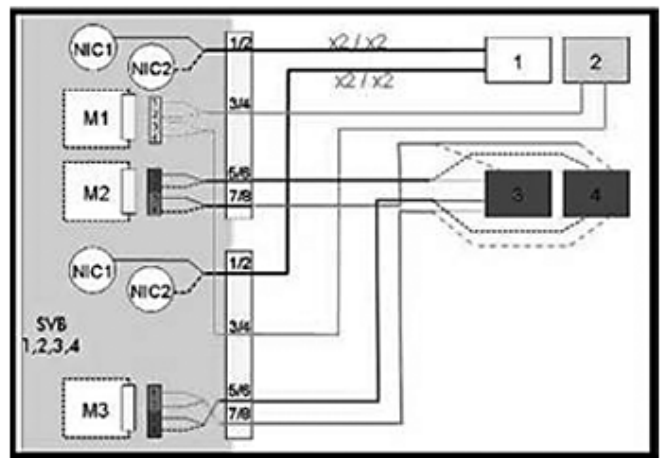
C7000 Half Height Server Blade



C7000 Full Height Server Blade



C3000 Half Height Server Blade



C3000 Full Height Server Blade

The BL2x220c Blade has a different I/O mapping for server I/O ports to expansion bays than existing half-height servers. The BL2x220c contains 2 server nodes that share a single half-height bay.

When installing a BL2x220c into an existing enclosure the following rules must be followed otherwise the Blade will not boot due to an e-keying error

HP BladeSystem c7000 Enclosure:

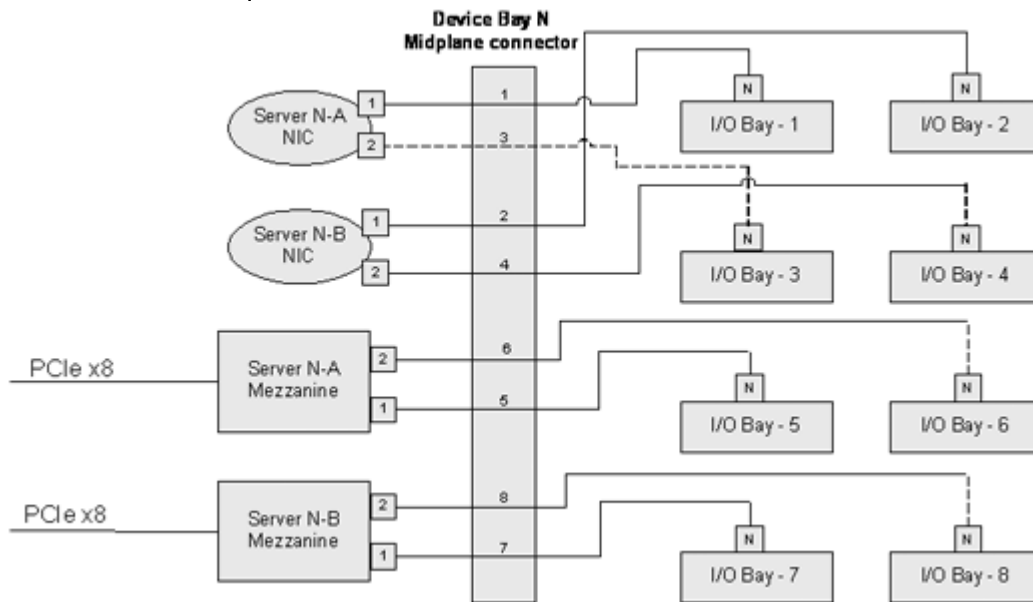
### Standard Features (HP BladeSystem c-Class Interconnect Components)

- Interconnect bays 1,2,3,4 are reserved for Ethernet
- Fibre Channel, InfiniBand or other Interconnects must be placed in bays 5 & 6 or 7 & 8
  - Bays 5 & 6 must match the mezzanine type plugged into Server A
  - Bays 7 & 8 must match the mezzanine type plugged into Server B

#### HP BladeSystem c3000 Enclosure:

- Interconnect bays 1 & 2 are reserved for Ethernet
- Fibre Channel or other Interconnects must be placed in bays 3 & 4
  - Bays 3 & 4 must have interconnects of the same type or be empty

#### HP ProLiant BL2x220c - c7000 I/O Map



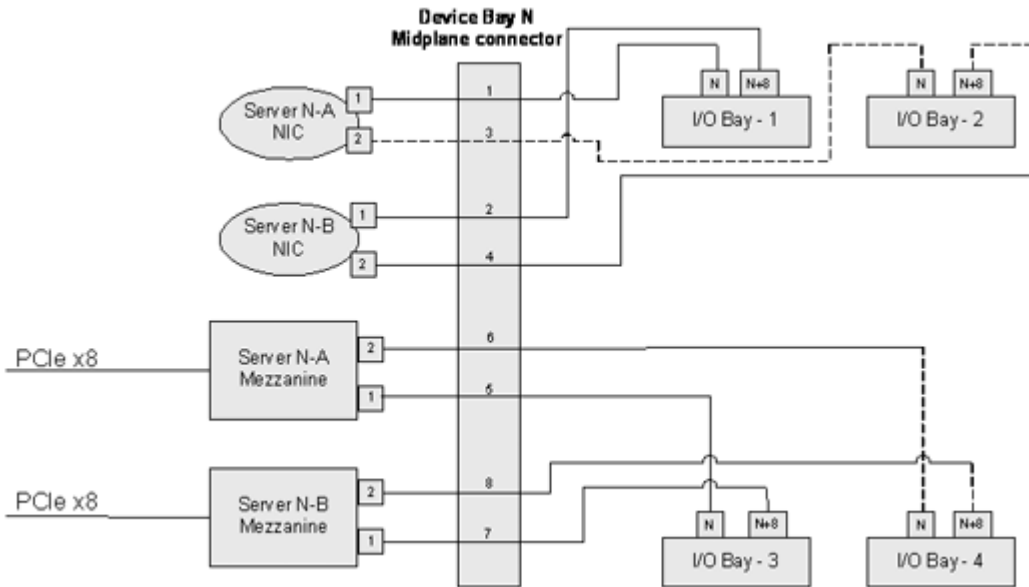
#### NOTE: HP BladeSystem c7000 Enclosure:

- Embedded NIC Port 1 from each server (Server A and Server B) is mapped to Interconnect bays 1 and 2 which support only Ethernet devices
- Embedded NIC Port 2 from each server (Server A and Server B) is mapped to Interconnect bays 3 & 4 which support only Ethernet devices in configurations using the BL2x220

The BL2x220 mezzanine slots connect to interconnect devices in Interconnect Bays 5 & 6 or 7 & 8

#### HP ProLiant BL2x220c - c3000 I/O Map

### Standard Features (HP BladeSystem c-Class Interconnect Components)



**NOTE: HP BladeSystem c3000 Enclosure:**

- Embedded NIC Port 1 from each server (Server A and Server B) can be accessed with an Ethernet interconnect in Interconnect bay 1
- Embedded NIC Port 2 from each server (Server A and Server B) is mapped to interconnect bay 2

The BL2x220 mezzanine slots connect to interconnect devices in Interconnect Bays 3 & 4. The fabric type for the mezzanine slots and their interconnects must all be the same for c3000 configurations with the BL2x220.

## Models

### Switch Modules

	Part Number
HP 10Gb Ethernet Blade Switch	445860-B21
HP 1:10 Gb Ethernet BL-c Switch	438031-B21
Cisco Catalyst Blade Switch 3120X for HP	451439-B21
Cisco Catalyst Blade Switch 3120G for HP	451438 -B21
Cisco Catalyst 3020 Blade Switch for HP c-Class BladeSystem	410916-B21
HP GbE2c Ethernet Blade Switch for c-Class BladeSystem	410917-B21
HP GbE2c Layer2/3 Ethernet Blade Switch for c-Class BladeSystem	438030-B21
Brocade 8/12c SAN Switch for HP BladeSystem c-Class, Full Fabric	AJ820A
Brocade 8/24c SAN Switch for HP BladeSystem c-Class, Full Fabric	AJ821A
Brocade 8/24c SAN Switch Power Pack for HP BladeSystem c-Class, Full Fabric	AJ822A
Brocade 8/12c SAN Switch 12-port Upgrade LTU	T5517A
Brocade 4/12 SAN Switch for HP c-Class BladeSystem, Full Fabric	AE370A
Brocade 4/24 SAN Switch for HP c-Class BladeSystem, Full Fabric	AE372A
Brocade 4/24 SAN Switch Power Pack for HP c-Class BladeSystem, Full Fabric	AE371A
Brocade 4/12 SAN Switch 12-port Upgrade LTU	AE373A
Cisco MDS 9124e 12-port Fabric Switch for HP c-Class BladeSystem	AG641A
Cisco MDS 9124e 24-port Fabric Switch for HP c-Class BladeSystem	AG642A
Cisco MDS 9124e Fabric Switch 12-port Upgrade LTU	T5169A

### Virtual Connect Modules



### Standard Features (HP BladeSystem c-Class Interconnect Components)

HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem	455880-B21
HP 1/10Gb Virtual Connect Ethernet Module for c-Class BladeSystem	399593-B22
HP 1/10Gb-F Virtual Connect Ethernet Module for c-Class BladeSystem	447047-B21
HP 4Gb Virtual Connect Fibre Channel Module for c-Class BladeSystem	409513-B21

#### Mezzanines and Adapters

QLogic QMH4062 1GbE iSCSI Adapter for HP c-Class BladeSystem	488074-B21
HP NC512m Dual Port 10GbE Multifunction BL-c Adapter	440910-B21

**NOTE:** The NC512m is supported in type II x8 PCI Express mezzanine slots; maximum two adapters per server. For more information, see the Mezzanine Slot Compatibility matrix within the HP NC512m Dual Port 10GbE Multifunction BL-c Adapter QuickSpecs:

<http://h18004.www1.hp.com/products/servers/networking/nc512m/index.html>

**NOTE:** A minimum of 2 GB of server memory is required per NC512m and supports a maximum of 32 GB for Windows and 64 GB for Linux.

**NOTE:** The NC512m adapter transmits from the server only at 20 Gbps, full duplex per port.

HP NC382m Dual Port 1GbE Multifunction BL-c Adapter	453246-B21
HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter for c-Class BladeSystem	406770-B21
HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21
HP NC360m Dual Port 1GbE BL-c Adapter	445978-B21
HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem	406771-B21
HP NC325m PCI Express Quad Port 1Gb Server Adapter for c-Class BladeSystem	416585-B21
HP 1Gb Ethernet Pass-Thru Module for c-Class BladeSystem	406740-B21
HP 4Gb Fibre Channel Pass-Thru Module for c-Class BladeSystem	403626-B21
QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21
Emulex LPe1105-HP 4Gb FC HBA for HP c-Class BladeSystem	403621-B21

### Standard Features

- Intelligent Manageability** Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (integrated on motherboard)
- Virtual KVM based remote console Virtual media (single server, browser based access only)
  - Remote Serial Console
  - Virtual Power Button Control
  - Virtual Unit ID control
  - Integrated Remote Console (Active X Control client)
  - Dedicated network connectivity
  - OS independent hardware health status
  - Automatic IP Configuration via DHCP/DNS/WINS
  - Industry Standard RC4, 128-bit Secure Sockets Layer (SSL) and Secure Shell (SSH) Security
  - Advanced Encryption Standard (AES/Triple Data Encryption Standard (3DES)
  - IML and iLO 2 Event Logging
  - Support for 12 user accounts with customizable access privileges
  - Single sign-on from HP BladeSystem Onboard Administrator

Upgrade to HP ProLiant Essentials Integrated Light-Out Select Pack for the following features:

- Power Regulator Reporting Virtual Media (command line and scripted multi-server)
- Enterprise security (includes directory services and two-factor authentication)

**NOTE:** Advanced features such as Graphical Remote Console and browser accessible Virtual Floppy/CD-ROM is included with the BL c-Class server.

- 
- Onboard Administrator** An Onboard Administrator management module is built in to the enclosure with the following functions:
- Robust, multiple enclosure setup and control.
  - Reports asset and inventory information for the devices in the enclosure.
  - Reports thermal and power information, including real-time actual power usage per server and per enclosure.
  - Front mounted Insight Display for easy management within the datacenter.
  - Integrated access to all server blade iLOs from a single cable.
  - Provides integrated access to interconnect bay device management ports from the single Onboard Administrator cable.
  - Single sign-on capability for all devices in the enclosure
  - Role-based security locally and/or with LDAP directory services.
  - Provides a wizard-based initial setup process for easy configuration.
-

### Standard Features

#### Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP 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. HP products supported through Factory Express include: a wide array of servers and storage: HP Integrity, HP ProLiant & HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxx, VA7xxx, EVA3000 & EVA5000, XP, rackable tape libraries and configurable network switches.

**NOTE:** For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>.

### Service and Support

HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs.

The HP Care Pack service or ProLiant BL c-Class server blades, cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server.

HP Care Pack services for the c7000 and c3000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP supported c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the c7000 and c3000 enclosure Care Pack services.

**NOTE:** SAN/Fabric switches for the HP c-Class BladeSystem are not covered under the c7000 enclosure Care Packs, SAN/Fabric switches carry separate Care Packs. SAN/Fabric Switch Care Pack service level support should always be uplifted to match existing storage or server service level.

To fully capitalize on your HP BladeSystem servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a HP BladeSystem server support offer to help you speedily deploy and maximize system uptime.

**Recommended Service** - Simplify ProLiant solution implementation, maintenance and management.

- **Support Service** - 4-Hour Response Coverage, 3-Year, 24 x 7, Same Business Day
- **Deployment Service** - Installation and Start Up for HP BladeSystem Infrastructure

**Enhanced Service** - Optimize service level to increase IT performance and availability

- **Support Service** - HP Proactive BladeSystem Service, 1-Year
- **Deployment Service** - Enhanced Network Installation and Start-up for HP BladeSystem Switches

Installation & Start-Up service for HP BladeSystem Infrastructure plus HP BladeSystem Enhanced Network Installation and Start-UP as per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

For a complete listing of service offerings and information visit:  
<http://www.hp.com/services/bladessystemservices>

### Standard Features

<http://www.hp.com/go/proliant/carepack>

### Options

#### Configuration Steps

For a complete configuration on the HP ProLiant and Integrity Server Blades, please do the following:

##### Step 1: Select desired model, configuration and quantity of HP ProLiant or Integrity server blades

**NOTE:** For server blade information, please visit:

<http://h18004.www1.hp.com/products/ blades/ components/ c-class- bladeservers.html> or  
<http://h18004.www1.hp.com/products/ blades/ components/ c-class-integrity- bladeservers.html>

##### Step 2: Determine quantity of HP BladeSystem c-Class Server Blade Enclosures to purchase

**NOTE:** Each HP BladeSystem c-Class Server Blade Enclosure holds 2, 4, 8 or 16 HP ProLiant server blades plus a minimum of two Interconnects depending on server blade selection.

**NOTE:** For additional information on HP BladeSystem c-Class Enclosures please visit:

HP BladeSystem c3000 Enclosure QuickSpecs:

[http://h18000.www1.hp.com/products/ quickspecs/ 12790\\_ na/ 12790\\_ na.html](http://h18000.www1.hp.com/products/ quickspecs/ 12790_ na/ 12790_ na.html)

HP BladeSystem c7000 Enclosure QuickSpecs:

[http://h18000.www1.hp.com/products/ quickspecs/ 12810\\_ na/ 12810\\_ na.html](http://h18000.www1.hp.com/products/ quickspecs/ 12810_ na/ 12810_ na.html)

##### Step 3: Determine number and type of Interconnect Components required for base configuration

**NOTE:** For additional information on HP BladeSystem c-Class Interconnect Components please visit

<http://h18004.www1.hp.com/products/ blades/ components/ c-class-interconnects.html>

#### HP ProLiant BL c-Class Interconnect Components

**NOTE:** Each HP BladeSystem c-Class enclosure requires two Ethernet/Fibre Channel switches OR Virtual Connect Ethernet/Fibre Channel Module OR two Ethernet/Fibre Channel Pass-Thru Modules for a redundant Ethernet/Fibre Channel configuration.

- Choose a base configuration that meets your Ethernet/Fibre Channel networking needs
- Order in quantities of two for a fully redundant configuration
- Choose additional options for the base configuration that meet your needs for cabling and software options
- Bays 1 and 2 are reserved for Ethernet Switches or Pass-Thru Modules supporting Server LAN on Motherboard (LOM) NIC connections to ports on the Ethernet Switch or Pass-Thru Module.
- Supported bays for additional Ethernet and/or Fibre Channel Switch Modules include unpopulated Bays 3/4, 5/6, or 7/ 8
- Redundant Switches must be configured adjacent to one another in Bays 1/2, 3/4, 5/6, or 7/ 8.

##### Step 1 - Base Configurations (Select one)

Switch Modules		
	HP 10Gb Ethernet Blade Switch	445860-B21
	HP 1:10Gb Ethernet BL-c Switch for c-Class BladeSystem	438031-B21
	Cisco Catalyst 3020 Blade Switch for HP c-Class BladeSystem	410916-B21
	HP GbE2c Ethernet Blade Switch for c-Class BladeSystem	410917-B21
	HP GbE2c Layer2/3 Ethernet Blade Switch for c-Class BladeSystem	438030-B21
	HP Brocade 8/12c SAN Switch	AJ820A
	HP Brocade 8/24c SAN Switch	AJ821A
	HP Brocade 8/24c SAN Switch Power Pack +	AJ822A
	HP Brocade 4/12 SAN Switch	AE370A

### Options

	HP Brocade 4/24 SAN Switch	AE372A
	HP Brocade 4/24 SAN Switch Power Pack	AE371A
	Cisco MDS 9124e 12-port Fabric Switch	AG641A
	Cisco MDS 9124e 24-port Fabric Switch	AG642A
<b>Virtual Connect Modules</b>	HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem	455880-B21
	HP 1/10Gb Virtual Connect Ethernet Module for c-Class BladeSystem	399593-B22
	HP 1/10Gb-F Virtual Connect Ethernet Module for c-Class BladeSystem	447047-B21
	HP 4Gb Virtual Connect Fibre Channel Module for c-Class BladeSystem	409513-B21
<b>Mezzanines and Adapters</b>	HP NC325m PCI Express Quad Port 1Gb Server Adapter for c-Class BladeSystem	416585-B21
	HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem	406771-B21
	HP NC360m Dual Port 1GbE BL-c Adapter	445978-B21
	HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21
	HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter for c-Class BladeSystem	406770-B21
	HP NC512m Dual Port 10GbE Multifunction BL-c Adapter	440910-B21
	<p><b>NOTE:</b> The NC512m is supported in type II x8 PCI Express mezzanine slots; maximum two adapters per server. For more information, see the Mezzanine Slot Compatibility matrix within the HP NC512m Dual Port 10GbE Multifunction BL-c Adapter QuickSpecs:  <a href="http://h18004.www1.hp.com/products/servers/networking/nc512m/index.html">http://h18004.www1.hp.com/products/servers/networking/nc512m/index.html</a></p> <p><b>NOTE:</b> A minimum of 2 GB of server memory is required per NC512m and supports a maximum of 32 GB for Windows and 64 GB for Linux.</p> <p><b>NOTE:</b> The NC512m adapter transmits from the server only at 20 Gbps, full duplex per port.</p>	
	HP NC382m Dual Port 1GbE Multifunction BL-c Adapter	453246-B21
	QLogic QMH4062 1GbE iSCSI Adapter for HP c-Class BladeSystem	488074-B21
	QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21
	Emulex LPe1105-HP 4Gb FC HBA for HP c-Class BladeSystem	403621-B21
<b>Step 2 - Additional Options (Select each type of required options with quantities specified):</b>		
<b>Switch Module Options</b>	Cisco Catalyst Blade Switch 3120X for HP	451439-B21
	Cisco Catalyst Blade Switch 3120G for HP	451438-B21
	1000Base SX Fiber SFP Module for the Cisco 3020 Catalyst Blade Switch	378929-B21

### Options

HP BLc GbE2c Layer 2/3 Fiber SFP Option Kit	440627-B21
<b>NOTE:</b> Each kit contains two SX SFP fiber modules. Only SFP modules with this part number will operate in the GbE2c Layer 2/3 Ethernet Blade Switch.	
HP 1Gb RJ-45 SFP for the Virtual Connect Ethernet Module	453154-B21
HP 1Gb SX SFP for the Virtual Connect Ethernet Module	453151-B21
HP 10Gb SR XFP for the Virtual Connect Ethernet Module	443756-B21
HP 10Gb LR XFP for the Virtual Connect Ethernet Module	443757-B21
HP BladeSystem 10Gb SR SFP+ for the Virtual Connect Flex-10 Ethernet Module	455883-B21
HP BladeSystem 10Gb LR SFP+ for the Virtual Connect Flex-10 Ethernet Module	455886-B21
HP BladeSystem 10Gb LRM SFP+ for the Virtual Connect Flex-10 Ethernet Module	455889-B21
<b>Choose one of the following pre-qualified cable lengths:</b>	
10Gb XFP 850nm SR for cable lengths up to 82 meters (MM)	443756 B21
10Gb XFP 1310nm LR for cable lengths up to 10KM (SM)	443757 B21
HP BLadeSystem c-Class .5m 10-GbE CX4 Cable	444477-B21
HP BLadeSystem c-Class 1m 10-GbE CX4 Cable	444477-B22
HP BladeSystem c-Class 3m 10-GbE CX4 Cable	444477-B23
HP BLadeSystem c-Class 15m 10-GbE CX4 Cable	444477-B27
HP.5m SFP+ 10GbE Copper Cable for the Virtual Connect Flex-10 Ethernet Module	487649-B21
HP 1m SFP+ 10GbE Copper Cable for the Virtual Connect Flex-10 Ethernet Module	487652-B21
HP 3m SFP+ 10GbE Copper Cable for the Virtual Connect Flex-10 Ethernet Module	487655-B21
HP 7m SFP+ 10GbE Copper Cable for the Virtual Connect Flex-10 Ethernet Module	487658-B21
<b>NOTE:</b> The above CX-4 cables support the HP 1:10Gb Ethernet BL-c Switch.	
4Gb Optical Transceivers (SFPs), Short Wave (4Gb - 150m)	A7446B
4Gb Optical Transceivers (SFPs), Long Wave - 10 km	AE493A
<b>NOTE:</b> These 4Gb Optical Transceivers support the Brocade 4Gb SAN Switches listed above. The Brocade 8Gb SAN Switches require B-series 4Gb and 8Gb SFPs listed below. Part numbers A7446B and AE493A are not supported with the Brocade 8Gb SAN Switch.	
HP 8Gb SW B-series FC SFP+ (for use with Brocade 8Gb SAN Switch)	AJ716A
HP 4Gb SW B-series FC SFP (for use with Brocade 8Gb SAN Switch)	AJ715A



### Options

HP 4Gb LW B-series 10km FC SFP (for use with Brocade 8Gb SAN Switch)	AK870A
HP 4Gb LW B-series 35km FC SFP 1 Pack (for use with Brocade 8Gb SAN Switch)	AN211A
Brocade Power Pack Software Bundle (only supported with Brocade 4Gb SAN Switch)	T3573A
<p><b>NOTE:</b> Only supported with Brocade 4Gb SAN Switch.  <b>NOTE:</b> For upgrading Brocade 4Gb Full Fabric switches to Power Pack. Includes bundled license for: ISL Trunking, Advanced Performance Monitoring*, Fabric Watch*, Extended Fabric*.  <b>NOTE:</b> Power Pack features noted with an asterisk (*) are not supported in Access Gateway mode</p>	
Brocade Power Pack+ Software Bundle (only supported with Brocade 8Gb SAN Switch)	T5521A
<p><b>NOTE:</b> For upgrading Brocade 8Gb Full Fabric switches to Power Pack. Includes bundled license for: 8-24 Port Adaptive Networking*, 8-24 Port ISL Trunking, Advanced Performance Monitoring*, Fabric Watch*, Extended Fabric*.  <b>NOTE:</b> Power Pack features noted with an asterisk (*) are not supported in Access Gateway mode.</p>	
Cisco MDS 9000 4Gb FC SFP, Short Range Transceiver 500m, (4 Pack)	AE379A
Cisco MDS 9000 4 Gb FC SFP 4km Medium Range Transceiver	AE494A
Cisco MDS 9000 4 Gb FC SFP 10km Long Range Transceiver	AE380A
<p><b>NOTE:</b> Additional SFPs beyond what is included in the box are optional and must be ordered separately. Fibre Channel ports on the MDS 9124e Fabric Switch may be configured to accept either Short Range, Medium Range, or Long Wave SFP optic transceivers. However, when ordering the MDS 9124e Fabric Switch, ports must be populated with above Cisco SFP optical transceiver options only (no substitutes allowed). Using other transceivers may void product warranty.</p>	
<p><b>Brocade SAN Switch/Cisco MDS 9124e Fabric Switch Optical Cables</b></p>	
<p><b>LC-LC OM3 type cables</b></p>	
.5 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ833A
1 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ834A
2 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ835A
5 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ836A
15 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ837A
30 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ838A
50 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ839A
<p><b>LC-LC OM2 Type Cables</b></p>	

### Options

2 m LC-LC Multi-Mode Fibre Channel Cable	221692-B21
5 m LC-LC Multi-Mode Fibre Channel Cable	221692-B22
15 m LC-LC Multi-Mode Fibre Channel Cable	221692-B23
30 m LC-LC Multi-Mode Fibre Channel Cable	221692-B26
50 m LC-LC Multi-Mode Fibre Channel Cable	221692-B27
<b>LC-SC OM2 Type Cables</b>	
2 m LC-SC Multi-Mode Fibre Channel Cable	221691-B21
5 m LC-SC Multi-Mode Fibre Channel Cable	221691-B22
15 m LC-SC Multi-Mode Fibre Channel Cable	221691-B23
30 m LC-SC Multi-Mode Fibre Channel Cable	221691-B26
50 m LC-SC Multi-Mode Fibre Channel Cable	221691-B27

**NOTE:** The Optical cables listed above support the Brocade SAN and Cisco MDS 9124e Switches listed above.

#### Step 4: Select a HP BladeSystem c-Class power enclosure and power supplies based on configuration

**NOTE:** For additional information on HP BladeSystem c-Class Enclosures please visit:

HP BladeSystem c3000 Enclosure QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12790\\_na/12790\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html)

HP BladeSystem c7000 Enclosure QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12810\\_na/12810\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html)

Use c-Class sizing tool to help determine power configuration:

<http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls>

**NOTE:** Power enclosures and supplies are not needed if using facility DC (-48V ± 10%).

#### Step 5: Select power distribution (only required with 3U power enclosures)

**NOTE:** For additional information on HP BladeSystem c-Class Enclosures please visit:

HP BladeSystem c3000 Enclosure QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12790\\_na/12790\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html)

HP BladeSystem c7000 Enclosure QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12810\\_na/12810\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html)

#### Service and Support Offerings

(HP Care Pack Services)

**NOTE:** The HP Care Pack service part numbers below for ProLiant BL c-Class server blades, cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server.

##### Hardware Services On-site Service

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UE458E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE459E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE460E

##### Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	UE473E
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### Options

**NOTE:** HP Care Pack services for the c7000 and c3000 enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP supported c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the c7000 enclosure Care Pack services.

**NOTE:** SAN/Fabric storage blade switches Limited Warranty includes 1 year parts, 1 year labor, 1 year on-site support.

**NOTE:** SAN/Fabric storage blade switches for the HP c-Class BladeSystem are not covered under the c7000 and c3000 enclosure Care Packs, SAN/Fabric storage blade switches carry separate Care Packs. SAN/Fabric Blade Switch Care Pack service level support should always be uplifted to match existing storage or server service level.

#### Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic UE477E

**NOTE:** Uplifts the Ethernet devices to the same level of warranty as the c-class enclosure.

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic UE478E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UE479E

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UE480E

#### Installation & Start-up Services

HP BladeSystem c-Class Infrastructure Installation and Startup Service, Electronic UE602E

HP BladeSystem Enhanced Network Installation and Startup Service, Electronic UE603E

ProLiant BL c-Class Blade Server Hardware Installation, Electronic UE493E

ProLiant BL c-Class Enclosure and Server Blade Hardware Installation, Electronic UE494E

**NOTE:** For more information, customer/resellers can contact:

<http://www.hp.com/services/bladessystemservices>

**NOTE:** The HP Care Pack service part numbers below covers the HP SB40c Storage Blade.

#### Installation & Start-up Services

Hardware Installation, Electronic UF213E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UF207E

**NOTE:** The HP Care Pack service part numbers below covers the HP InfiniBand Adapter for c-Class BladeSystem.

#### Installation & Start-up Services

Hardware Installation, Electronic HC046E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UA248E

**NOTE:** The HP Care Pack service part numbers below covers the HP Storage Tape Blade.

#### Installation & Start-up Services

Hardware Installation, Electronic U2090E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic H4622E

**NOTE:** The HP Care Pack service part numbers below covers the HP Brocade 4Gb, 12 Port SAN Switch and Brocade 4/24 SAN Switch.

#### Hardware Services On-site Service

### Options

Hardware Installation, Electronic	U5988E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, (12 port) Electronic	UC009E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, (24 port) Electronic	UE438E
<b>Support Plus</b>	
Onsite Hardware support, 8am-9pm, M-F, 4-hour response and Software Technical support offsite, onsite at HP's discretion, 8am-9pm, M-F 2-hour response time excluding HP holidays, Electronic	UE728E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, (24 port) Electronic	UC019E
<b>Support Plus 24</b>	
Onsite Hardware support 24x7, 4-hour response and software Technical support offsite, onsite at HP's discretion, 24x7 2-hour response time including HP holidays, Electronic	UE729E
<b>Software Installation and Start Up Services</b>	
Provides for the Installation and Start-up of ProLiant Essentials Rapid Deployment Pack, Electronic	U5683E
<p><b>NOTE:</b> Provides installation on a Customer supplied server designated as a Deployment Server. Includes the deployment of a single server. This new server will be deployed using either one of the pre-configured scripts or an image. In addition, the service will provide for the capture and storage of the configuration of the newly deployed server and orientation on product usage. To be delivered during standard office hours, standard office days.</p>	
Provides for the Installation and Start-up of Rapid Deployment Pack Implementation of Rapid Deployment Pack (Basic) (Electronic)	UA042E
Provides for the Installation and Start-up of System Insight Manager (Electronic)	UA041E
Provides for the Installation and Start-up of System Insight Manager Agents (Electronic)	UA040E
Provides for the Installation and Startup of Insight Control - Linux Edition	UF369E
Provides for the Installation and Startup of Virtual Machine Management & Server Migration Pack	UD546E
<b>Software Operating Environment Care Packs</b>	
<p><b>NOTE:</b> For more information, customer/resellers can contact:  <a href="http://www.hp.com/hps/carepack/services/">http://www.hp.com/hps/carepack/services/</a></p>	
<b>HP Proactive BladeSystem Service Care Pack</b>	
1 Year, HP Proactive BladeSystem Service	UG858E
<p><b>NOTE:</b> For more information, customer/resellers can contact:  <a href="http://www.hp.com/services/proactivebladeservice">http://www.hp.com/services/proactivebladeservice</a></p>	

### Technical Specifications

For Technical Specifications for the HP BladeSystem c-Class Interconnect Components, please visit the QuickSpecs of the products listed below:

HP 10/10Gb-F Virtual Connect Ethernet Module

[http://h18000.www1.hp.com/products/quickspecs/13127\\_na/13127\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13127_na/13127_na.html)

HP 10Gb Ethernet BL-c Switch

[http://h18000.www1.hp.com/products/quickspecs/12751\\_na/12751\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12751_na/12751_na.html)

HP 1:10 Gb Ethernet BL-c Switch:

[http://h18000.www1.hp.com/products/quickspecs/12723\\_na/12723\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12723_na/12723_na.html)

Cisco Catalyst 3120 Blade Switches

[http://h18000.www1.hp.com/products/quickspecs/13023\\_na/13023\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13023_na/13023_na.html)

Cisco Catalyst 3020 Blade Switch:

[http://h18000.www1.hp.com/products/quickspecs/12515\\_na/12515\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12515_na/12515_na.html) or

HP 1/10Gb Virtual Connect Ethernet Module for the c-Class BladeSystem:

[http://h18000.www1.hp.com/products/quickspecs/12597\\_na/12597\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12597_na/12597_na.html)

HP GbE2c Layer2/3 Ethernet Blade Switch for c-Class BladeSystem:

[http://h18000.www1.hp.com/products/quickspecs/12670\\_na/12670\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12670_na/12670_na.html)

HP GbE2c Ethernet Blade Switch for c-Class BladeSystem

[http://h18000.www1.hp.com/products/quickspecs/12514\\_na/12514\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12514_na/12514_na.html)

Cisco MDS 9124e Fabric Switch for HP c-Class BladeSystem

[http://h18000.www1.hp.com/products/quickspecs/12653\\_na/12653\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12653_na/12653_na.html)

Brocade 4Gb SAN Switch for HP c-Class BladeSystem

[http://h18006.www1.hp.com/products/quickspecs/12480\\_na/12480\\_na.html](http://h18006.www1.hp.com/products/quickspecs/12480_na/12480_na.html)

Brocade 8Gb SAN Switch for HP BladeSystem c-Class

[http://h18006.www1.hp.com/products/quickspecs/13084\\_na/13084\\_na.html](http://h18006.www1.hp.com/products/quickspecs/13084_na/13084_na.html)

QLogic QMH4062 1GbE iSCSI Adapter for HP BladeSystem c-Class

[http://h18006.www1.hp.com/products/quickspecs/13083\\_na/13083\\_na.html](http://h18006.www1.hp.com/products/quickspecs/13083_na/13083_na.html)

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#### Environment-friendly Products and Approach

#### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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### *Technical Specifications*

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