

Overview

Simplify and make your data center change-ready. The HP 1/10Gb Virtual Connect Ethernet Module for the c-Class BladeSystem is the simplest, most flexible connection to your networks. The Virtual Connect Ethernet Module is 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. The HP 1/10Gb Virtual Connect Module for c-Class BladeSystem is an innovative, new class of integrated interconnects from HP.

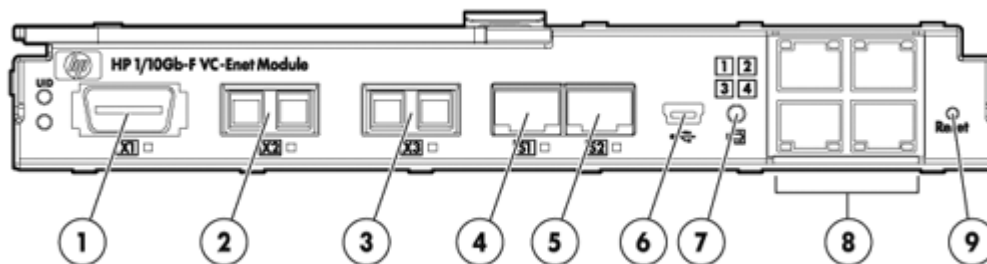


Figure 1 Virtual Connect Ethernet Module Front Bezel

1. 10GbE CX4 port
2. 10GbE XFP port
3. 10GbE XFP port
4. 1GbE SFP port
5. 1GbE SFP port
6. USB 2.0 port (covered, for future use)
7. Next button
8. Ports 1-4 (10/100/1000BASE-T)
9. Reset button (recessed)

What's New

- Virtual Connect v3.30 highlights for the Virtual Connect Flex-10 Module
 - CLI commands provide essential system, configuration and network troubleshooting information
 - Configure simultaneous tunneled and mapped VLANs in a single VC domain
 - TACACS+ and RADIUS role-based security compatibility
 - Network access groups prevent connection of specific network combinations in the same server profile
 - iSCSI boot assistant simplifies boot parameter configuration
 - Server side network loop prevention

Overview

At A Glance

Performance

- (1) 10GbE -CX4 uplink can be connected to core switches or used to stack Virtual Connect modules
- (2) 10GbE XFP uplinks
- (2) 1GbE SFP uplinks for Fiber or Copper connectivity
- (4) 10/100/1000BASE-T uplinks can be connected to core switches or used to stack Virtual Connect modules
- Wire speed performance on all ports
- IGMP Snooping optimizes network traffic and reduces bandwidth for multicast applications such as streaming applications
- VLAN Tagging, Pass-Thru and Link Aggregation supported on all uplinks
- In tunneled VLAN mode, up to 4,096 networks are supported per network uplink and server downlink. In mapped VLAN mode, up to 128 networks are supported on network uplinks per Share Uplink Set and on server downlinks up to 28 networks are supported per FlexNIC.

Management

- Integrated Virtual Connect Manager included with every module, providing out-of-the-box, secure HTTP and scriptable CLI interfaces for individual Virtual Connect domain configuration and management.
- Easy setup and management via the Onboard Administrator interface
- SNMP v.1 and v.2 provide ease of administration and maintenance.
- LDAP, RADIUS, TACACS+ compatible role based authentication, authorization and accounting (RADIUS and TACACS+ require v3.30 or greater. Accounting supported in LDAP and TACACS+)
- Port Mirroring on any uplink provides network troubleshooting support with Network Analyzers
- Remotely update Virtual Connect firmware on multiple modules using Virtual Connect Support Utility 1.5.0 or greater (Firmware update is no longer accomplished via GUI or CLI with VC v3.01)

Virtual Connect Server Profiles

- Allows setup of server connectivity prior to server installation for easy deployment
- Ability to move, add, or change server network connections on the fly
- Once defined, LAN and SAN administrators don't have to be involved in server changes

Options

- Virtual Connect Enterprise Manager (VCEM), provides a central console for multiple VC domains including up to 250 domains with 1,000 HP BladeSystem c-Class enclosures
- Stack multiple Virtual Connect Ethernet modules together in an enclosure to allow any server Ethernet port to connect to any uplink
- The Fibre Channel Virtual Connect Module provides a complete LAN and SAN Virtual Connect solution
- HP CX4 Ethernet cables are available in .5m, 1m, 3m, and 15m lengths
- HP XFP and SFP modules available in a variety of media types
- Supports all Server NIC's including LOM and Mezzanine card options

Models

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

447047-B21



Supported Products

Compatibility

HP ProLiant and Integrity Server Blades

All HP ProLiant BladeSystem c-Class Server Blades with latest ROM updates

Supports all Server NIC's including LOM and Mezzanine card options

Virtual Connect requires the following minimum firmware levels:

NOTE: HP Integrity BL8x0c i2 servers require VC FW 3.0 or later.

BL460c Embedded NICs:

- NC373i Boot code version 1.9.6 and C Class option ROM 1.1.3. or later. Found in - HP Gigabit Server Adapter Firmware Upgrade Utility for C-Class Blades - Rev 1.10
- BL460c BIOS - System ROM version 2007.05.01 or later

BL480c Embedded NICs:

- NC370i boot code v1.9.6 and NIC option ROM v1.1.3 or later
- NC326i boot code v3.28 and NIC option ROM v1.1.3 or later Both found in - HP Gigabit Server Adapter Firmware Upgrade Utility for C-Class Blades - Rev 1.10
- BL480c BIOS-System ROM version 2007.05.01 or later

BL465c Embedded NICs:

- NC370i boot code v1.9.6 and NIC option ROM v1.1.3 or later Found in - HP Gigabit Server Adapter Firmware Upgrade Utility for C-Class Blades - Rev 1.10
- BL465c BIOS - System ROM version 2007.04.05 or later

BL685c Embedded NICs:

- NC370i boot code v1.9.6 and NIC option ROM v1.1.3 or later
 - NC326i boot code v3.28 and NIC option ROM v1.1.3 or later Both found in -HP Gigabit Server Adapter Firmware Upgrade Utility for C-Class Blades - Rev 1.10
- Server Mezzanine Cards:
- NC373m Boot code version 1.9.6 and C Class option ROM 1.1.3. or later. Found in - HP Gigabit Server Adapter Firmware Upgrade Utility for C-Class Blades - Rev 1.10
 - NC325m Boot code version 3.28 and C Class option ROM 1.1.3 or later Found in - HP Gigabit Server Adapter Firmware Upgrade Utility for C-Class Blades - Rev 1.10
 - NC326m Boot code version 3.28 and C Class option ROM 1.1.3. or later Found in - HP Gigabit Server Adapter Firmware Upgrade Utility for C-Class Blades - Rev 1.10
 - QLogic QMH2462 4Gb FC HBA QLogic Firmware loaded when driver is loaded. Use QLogic BIOS version 1.26 (in Multiboot 1.63) or later
 - BL685c BIOS - System ROM version 2007.04.05 or later

NOTE: For additional information on required firmware versions and to download firmware upgrades, see the HP website (<http://www.hp.com/go/bladestemupdates>).

HP BL c-Class Server Blade Enclosures

The HP BladeSystem c3000 and c7000 Enclosure has been designed up front with the Virtual The HP BladeSystem c3000 and c7000 Enclosure has been designed up front with the Virtual Connect Architecture in mind incorporating the HP Onboard Administrator, ILO Management, and HP Management tools inside the Virtual Connect framework.

Enclosures:

- HP BladeSystem c-Class c7000 Enclosure with Onboard Administrator



Supported Products

- HP BladeSystem c-Class c3000 Enclosure with Onboard Administrator

Virtual Connect Firmware Virtual Connect Firmware v3.30 is recommended with the following release sets for HP ProLiant and HP Integrity environments:

HP ProLiant server blades:

HP Service Pack for ProLiant : Version 2011.06.0 or greater

The new HP Service Pack for ProLiant is an enhanced, re-packaging of ProLiant systems software and firmware based on the rich legacy of ProLiant Support Packs (PSPs) and HP Smart Update Firmware DVD. It contains the first comprehensive collection of firmware and system software components, all tested together including drivers, agents, non-agents, utilities, firmware packages for servers, controllers, storage, HP BladeSystem enclosures and components (including Virtual Connect, Onboard Administrator), and all components and options supported by HP ProLiant Support Packs for Windows and Linux version 8.70. In addition, VMware offline firmware updates are included.

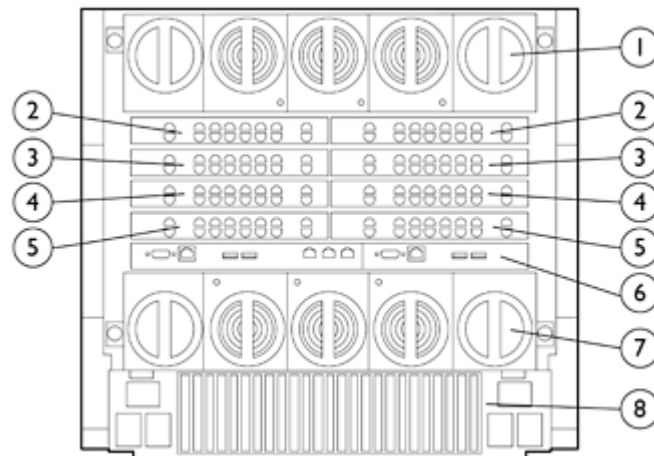
To access the latest HP Service Pack for ProLiant click here:

www.hp.com/go/server/service_packs/updates

HP Integrity Server Blades

Virtual Connect v3.30	Onboard Administrator in c7000 Enclosures: Recommended version 3.31 or higher	iLO: Recommended version K15.05 or higher
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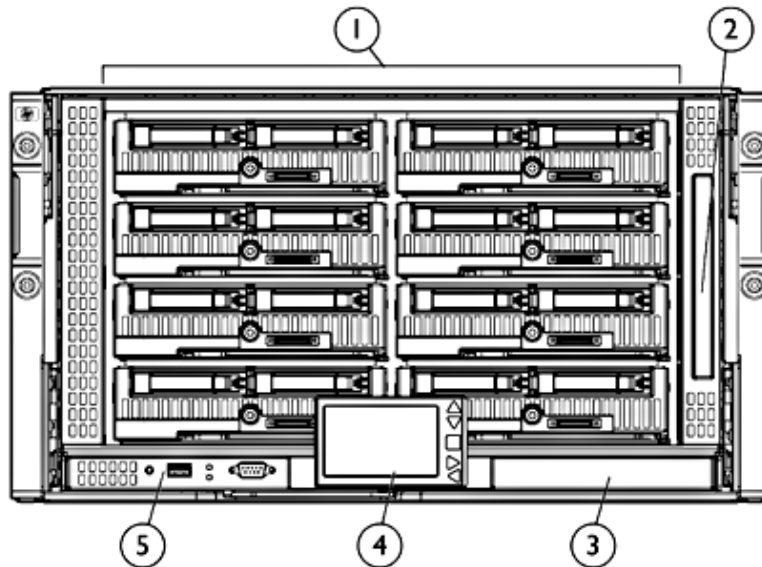
Supported Configurations



HP BladeSystem c7000 Enclosure - Rear View

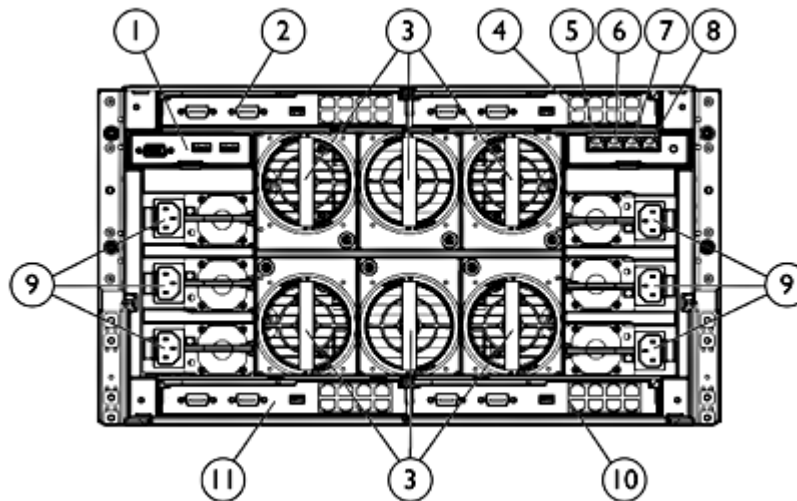
- | | |
|----------------------------|---------------------------------|
| 1. Upper Fan System | 5. Interconnect Bays 7 / 8 |
| 2. Interconnect Bays 1 / 2 | 6. On Board Administrator |
| 3. Interconnect Bays 3 / 4 | 7. Lower Fan System |
| 4. Interconnect Bays 5 / 6 | 8. Rear Redundant Power Complex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

Supported Products



HP BladeSystem c3000 Enclosure - Front View

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



HP BladeSystem c3000 Enclosure - Rear View

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

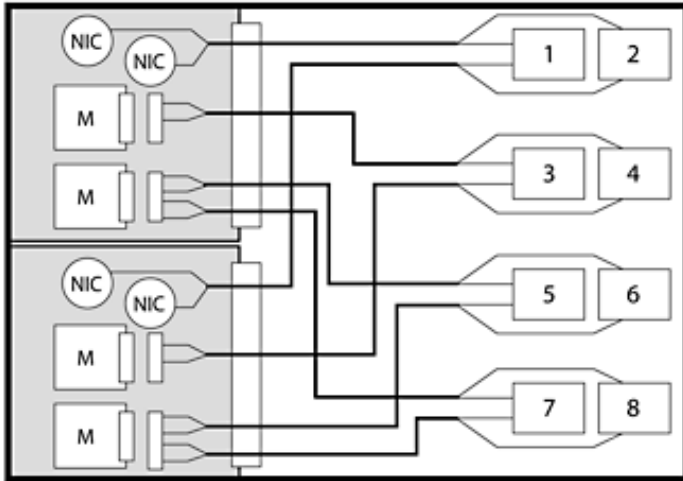
Supported Products

Mezzanines

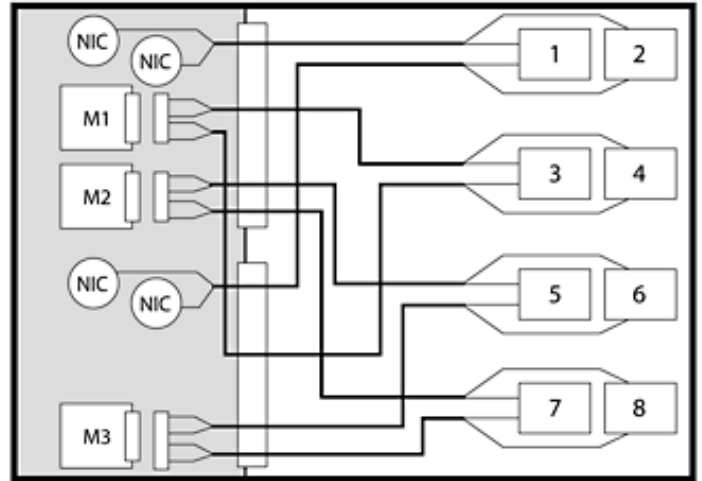
c-7000 Port Mapping

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.



Half Height Server Blade

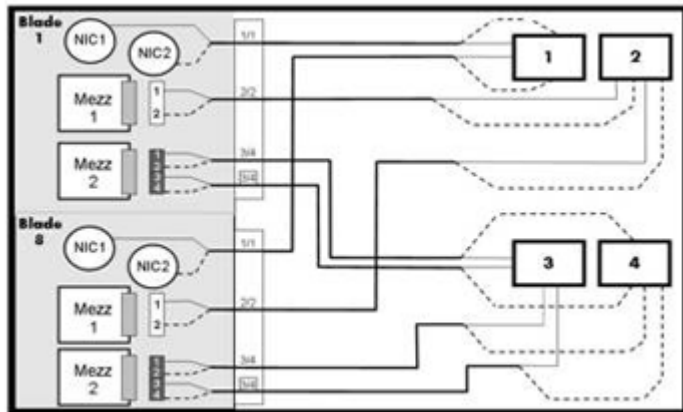


Full Height Server Blade

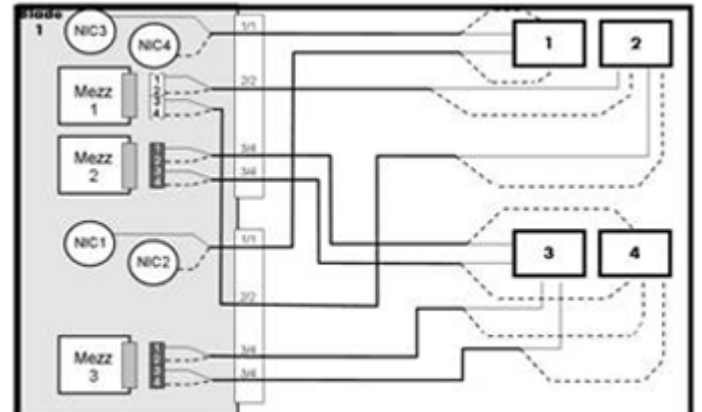
c-3000 Port Mapping

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.



Half Height Server Blade



Full Height Server Blade

The following are supported configurations for the 1/10Gb-F Virtual Connect Ethernet Module. Please note that other interconnect options can be installed in the enclosure, but they do not inherit the benefits of Virtual Connect. Switches and Pass-Through modules will operate per their default configurations. Any moves, adds, or changes to servers which are connected to non-Virtual Connect modules will require reconfiguration on the LAN and/or SAN. The Virtual Connect Manager will only manage Virtual Connect Modules.

Supported Products

HP BladeSystem c7000 Enclosure

NOTE: The following tables show a number of typical, supported configurations for an HP BladeSystem c7000 Enclosure.

[Bay 1] VC-Enet	[Bay 2] Empty
[Bay 3] Other/empty	[Bay 4] Other/empty
[Bay 5] Other/empty	[Bay 6] Other/empty
[Bay 7] Other/empty	[Bay 8] Other/empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] Other/empty	[Bay 4] Other/empty
[Bay 5] Other/empty	[Bay 6] Other/empty
[Bay 7] Other/empty	[Bay 8] Other/empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-Enet	[Bay 4] VC-Enet
[Bay 5] Other/empty	[Bay 6] Other/empty
[Bay 7] Other/empty	[Bay 8] Other/empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] Other/empty	[Bay 4] Other/empty
[Bay 5] VC-Enet	[Bay 6] VC-Enet
[Bay 7] Empty	[Bay 8] Empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-Enet	[Bay 4] VC-Enet
[Bay 5] VC-Enet	[Bay 6] VC-Enet
[Bay 7] Empty	[Bay 8] Empty

[Bay 1] VC-Enet	[Bay 2] Empty
[Bay 3] VC-FC	[Bay 4] Empty
[Bay 5] Other/empty	[Bay 6] Other/empty
[Bay 7] Other/empty	[Bay 8] Other/empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-FC	[Bay 4] VC-FC
[Bay 5] Other/empty	[Bay 6] Other/empty
[Bay 7] Other/empty	[Bay 8] Other/empty

Supported Products

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-Enet	[Bay 4] VC-Enet
[Bay 5] VC-FC	[Bay 6] VC-FC
[Bay 7] Empty	[Bay 8] Empty

[Bay 1] VC-Enet*	[Bay 2] VC-Enet
[Bay 3] VC-Enet	[Bay 4] VC-Enet
[Bay 5] VC-FC	[Bay 6] VC-FC
[Bay 7] VC-FC	[Bay 8] VC-FC

* This configuration is only applicable for enclosures with full-height servers.

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-FC	[Bay 4] VC-FC
[Bay 5] VC-Enet	[Bay 6] VC-Enet
[Bay 7] Empty	[Bay 8] Empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-FC	[Bay 4] VC-FC
[Bay 5] VC-Enet	[Bay 6] VC-Enet
[Bay 7] VC-Enet	[Bay 8] VC-Enet

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] Other/empty	[Bay 4] Other/empty
[Bay 5] VC-FC	[Bay 6] VC-FC
[Bay 7] Empty	[Bay 8] Empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-FC	[Bay 4] VC-FC
[Bay 5] VC-FC	[Bay 6] VC-FC
[Bay 7] Empty	[Bay 8] Empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-Enet	[Bay 4] VC-Enet
[Bay 5] VC-Enet	[Bay 6] VC-Enet
[Bay 7] VC-Enet	[Bay 8] VC-Enet

Supported Products

HP BladeSystem c3000 Enclosure

NOTE: The following tables show a number of typical, supported configurations for an HP BladeSystem c3000 Enclosure.

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] Empty	[Bay 4] Empty

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-Enet	[Bay 4] VC-Enet

[Bay 1] VC-Enet	[Bay 2] VC-Enet
[Bay 3] VC-FC	[Bay 4] VC-FC

Required Network Cabling	10BASE-T	Categories 3 UTP or better (up to 100 meters) EIA/TIA-568 100-ohm STP (up to 100 meters)
	100BASE-TX	Category 5 UTP or better (up to 100 meters) EIA/TIA-568 100-ohm STP (up to 100 meters)
	1000BASE-T	Category 5e UTP or better (up to 100 meters) EIA/TIA-568 100-ohm STP (up to 100 meters)
	10GBASE-CX4	Twinax CX4 (0.5 to 15m)

NOTE: For available cables; please see the "Options" section below of this QuickSpecs.

Stacking Configuration

Stacking links are used to interconnect Virtual Connect Ethernet Modules when using more than one enclosure (future) or when using more than two Virtual Connect Ethernet Modules in a single enclosure. All Virtual Connect Modules within the VC Domain must be interconnected. Any combination of 1Gb and 10Gb cables can be used to interconnect the Virtual Connect Modules; however the following provides recommended configurations (note that a built-in 10Gb link is provided between modules in horizontally adjacent bays). Supported cable lengths on 10Gb uplinks are 3 to 15 meters and supported 10Gb stacking links (connecting between two HP Virtual Connect Ethernet Modules) are 0.5 to 7 meters. Interconnecting the modules allows all Ethernet NICs on all server blades in the Virtual Connect domain to have access to any Virtual Connect uplink port. By using these module-to-module links, a single pair of uplinks can be used as the data center network connections for the entire Virtual Connect domain, and allows any server blade to be connected to any Ethernet network.

NOTE: Supported module-to-module and multi-enclosure stacking configurations may be found in the [HP Virtual Connect for c-Class BladeSystem Setup and Installation Guide](#) which can be downloaded at the following address: [HP Virtual Connect for c-Class BladeSystem and Installation Guide](#)



Service and Support, HP Care Pack and Warranty Information

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for three years from date of purchase. 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.

NOTE: 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>

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

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/bladestystemsolutions>

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



Related Options

Cabling and Transceiver Options	HP BladeSystem c-Class .5m 10-GbE CX4 Cable Option	444477-B21
	HP BladeSystem c-Class 1m 10-GbE CX4 Cable Option	444477-B22
	HP BladeSystem c-Class 3m 10-GbE CX4 Cable Option	444477-B23
	HP BladeSystem c-Class 15m 10-GbE CX4 Cable Option	444477-B27
	HP BLc Virtual Connect 1Gb RJ-45 Small Form Factor Pluggable Option Kit	453154-B21
	HP BLc Virtual Connect 1Gb SX Small Form Factor Pluggable Option Kit	453151-B21
	HP 850nm Short-range 10 Gigabit Small Form Factor Pluggable Module Option Kit	443756-B21
	HP 1350nm Long-range 10 Gigabit Small Form Factor Pluggable Module Option Kit	443757-B21

Service and Support Offerings

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

HP 3year 4hour 13x5 c-Class Server Blade HW Support	UE458E
HP 3year 4hour 24x7 c-Class Server Blade Hardware Support	UE459E
HP 3year 6hour 24x7 Call to Repair c-Class Server Blade Hardware Support	UE460E

Support Plus 24

HP 3year SupportPlus24 Microsoft c-Class Server Blade Service	UE473E
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NOTE: HP Care Pack services for the c7000 and c3000 Enclosures 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 enclosures Care Pack services.

NOTE: SAN/Fabric switches for the HP c-Class BladeSystem are not covered under the c7000 and c3000 enclosures 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.

Hardware Services On-site Service

HP 3 year Next business day c7000 Enclosure Hardware Support	UE477E
NOTE: Uplifts the Ethernet devices to the same level of service as the c-class enclosure	
HP 3 year 4 hour 13x5 c7000 Enclosure Hardware Support	UE478E
HP 3 year 4 hour 24x7 c7000 Enclosure Hardware Support	UE479E
HP 3 year 6 hour 24x7 Call to Repair c7000 Enclosure Hardware Support	UE480E

Installation & Start-up Services

HP Startup Blade System c-Class Infrastructure Service	UE602E
HP Startup Blade System c-Class Enhanced Network Service	UE603E
HP Install c-Class Server Blade Service	UE493E
HP Install c-Class Enclosure & Server Blade Service	UE494E

NOTE: For additional information; please visit:
<http://www.hp.com/services/bladessystemservices>



Technical Specifications

Shipping Dimensions	Length	13.88 in (352.55 mm)
	Width	10.63 in (270.00 mm)
	Height	4.75 in (120.65 mm)
Shipping Weight		4.4 lbs (2.0 kg)
Product Specifications Hardware	Performance	108 Gb total throughput Non-blocking, line rate packet forwarding Maximum transmission unit (MTU) of up to 9216 bytes (jumbo frames)
	Connectors and Cabling	Gigabit Ethernet uplink ports (Up to 9 external) 2 external 1GbE SFP ports 4 external 10/100/1000BASE-T RJ-45 ports. 2 external 10GbE Fiber XFP ports. 1 external 10GbE CX4 (one additional internal 10Gb Cross Connect)
Indicators		<ul style="list-style-type: none"> ● Recessed Momentary Reset Switch ● Momentary Next/Step Switch ● Backlit port number and status indicator LED, one per bulkhead port, blue/amber/green ● Module status indicator, amber/green ● Module locator (UID), blue ● 10/100 speed Link/Activity indicator, one per RJ45 port, green ● 1000 Link/Activity indicator, one per RJ45 port, amber ● 1000 Link/Activity indicator, one per SFP port, amber ● Link/Activity indicator, one per CX4-port, green ● Link/Activity indicator, one per XFP-port, green
Dimensions	Length	10.5 in (267.7 mm)
	Width	7.5 in (92.79 mm)
	Height	1.1 in (27.94 mm)
Weight		1.27kg (2.8 Lbs)
Environmental Ranges	Temperature Range	
	Specification	10C to 35C (50F to 95F)
	Temperature range*	
	Operating	10C to 35C (50F to 95F)
	Shipping	Shipping -40C to 60C (-40F to 140F)
	Storage	-20°C to 60°C (-4F to 140°F)
	Maximum wet bulb temperature	30C (80F)
	Relative humidity (noncondensing)**	
	Operating	10% to 90%
	Shipping	10% to 90%
Storage	10% to 95%	



Technical Specifications

* All temperature ratings shown are for sea level. An altitude derating of 1°C per 304.8 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Upper operating limit is 3,048m (10,000 ft) or 70 Kpa/10.1 psia. Upper non-operating limit is 9,144 m (30,000 ft) or 30.3 KPa/4.4 psia.

** Storage maximum humidity of 95% is based on a maximum temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

Power Specification 12V @ 3.7A (44.4 W)

Product Specifications Software

Security Features

HTTPS (HTTP exchanged over an SSL-encrypted session) is required for access to the Virtual Connect Manager.

Access to the Virtual Connect Manager is via the system Onboard Administrator

Each user account can be configured for a combination of four access privileges to control and/or view elements in the Virtual Connect Manager.

User verification by account name and password (Case Sensitive)

LDAP Authentication services provide role based security via an LDAP SSL Directory Server connection.

TACACS+ authentication, authorization and accounting
RADIUS authentication and authorization

Compliant with United States Department of Defense Policy on Use of Department of Defense (DoD) Information Systems Standard Consent Banner and User Agreement

Trunking and Failover Features

Shared Uplink Sets using Link Aggregation Control Protocol (LACP) allows the creation of Ethernet channeling with upstream switches that conform to IEEE 802.3ad. Ports can alternatively be configured for failover only. External ports within a Port Set can be on the same VC Ethernet module or on multiple VC modules within the VC domain.

In the event of an uplink failure to a data center switch, the next highest performance uplink connection or aggregation will become active.

Fast MAC Cache failover enables rapid recovery of network connections when a standby module becomes active.

Smart Link network senses a failed upstream switch connection and allows teamed NIC's to properly failover.

Configure uplink speeds to Auto,,10Mb, 100Mb, 1Gb,or10Gb on the associated uplinks

VLAN Features

802.1Q VLAN supported on uplinks

Uplink ports can be configured for VLAN tagging at egress or pass-thru of tagged VLAN packets from Server ports

Native VLAN support for untagged packets on a shared uplink set. Packets can be targeted to a specific server ports.

Management Features

Simple and intuitive Graphical User Interface (GUI) for defining, configuring, and managing all elements of the Virtual Connect Domain.

Setup Wizards for initial domain installation and configuration and network



Technical Specifications

configuration.

Comprehensive administration, definition, and management of Ethernet Network, Shared Uplink Set, and Server Profiles

Embedded SNMP v1, v2 and SMI-S agents allow Network Management applications to query Virtual Connect for statistics and trap information.

A robust, scriptable and secure Command Line Interface simplifies management and enables macros to control common Virtual Connect tasks

Any uplink port can be used as a dedicated mirrored port for traffic analysis and troubleshooting by a Network Analyzer or Sniffer.

Domain Management of user accounts, enclosure, Virtual Connect domain settings, and firmware updates

The location and status of Virtual Connect Modules in the HP c-Class Enclosure and Onboard Administrator can be viewed from the Hardware Status page. Including at-a-glance detailed information of the hardware elements via mouse-over pop-up windows.

MAC Address Administration allows local administration of predefined or user-defined MAC address ranges.

VC manager runs as a high-availability pair when an HP 1/10Gb VC-Enet Module is installed in adjacent bays. All configuration data is stored in flash memory and checkpointed to the standby module. Configurations can also be backed up to a workstation via the GUI.

Up to 128 Network Access Groups can be defined to prevent enabling specific network combinations in the same server profile

Supported by HP Virtual Connect Enterprise Management v6.20 and higher. Provides centralized network connection management and workload mobility for thousands of servers. Learn more at: www.hp.com/go/vcem

Management and Standards Support

Standards

IEEE 802.1g
IEEE 802.3ac
IEEE 802.3ad (LACP)
IEEE 802.3 10BASE-T
IEEE 802.3u 100BASE-TX
IEEE 802.3ab 1000BASE-T
IEEE 802.3z 1000BASE-X
IEEE 802.3ak 10GBASE-CX4
IEEE 802.3ae 10GBASE -X
SNMP v.1, v.2
IGMP v1,v2,v3



Technical Specifications

Safety and Compliance

Safety Certifications

UL/CUL Recognition to UL/CSA 60950-1
TUV to EN 60950-1
CB report and certificate to IEC 60950-1 with all country deviations
CE Marking

Electromagnetic Emissions Certifications FCC Part 15 Class A

FCC Part 15 Class A
EN 55022 Class A (CISPR22 Class A)
VCCI Class A
AS/NZS 3548 Class A or AS/NZS CISPR22 Class A
MIC Class A
CE Marking

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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