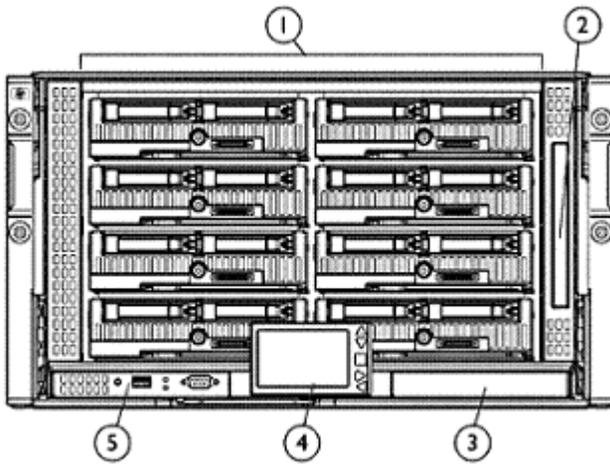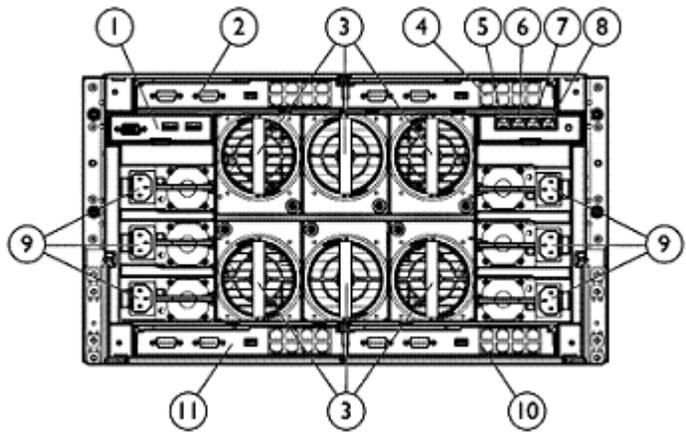## Overview

HP BladeSystem c3000 Enclosure - Rack - Front View

1. Device Bays 1 thru 8
2. Enclosure DVD Drive
3. Standby Onboard Administrator
4. Insight Display
5. Active Onboard Administrator

HP BladeSystem c3000 Enclosure - Rack - Rear View

1. Local KVM interface
2. Interconnect Bay 1
3. Active Cool 100 Fans and fan bays
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

A HP BladeSystem solutions start with a either a c7000 or c3000 Enclosure. For the c3000 Enclosure, customers can add c3000 hot-plug power supplies, HP Active Cool Fans, and an optional redundant BladeSystem Onboard Administrator module. Once the enclosure has been selected, the following components can be added: networking interconnect modules, HP ProLiant and Integrity Server Blades, expansion blades, and optional Insight Control for BladeSystem management software. For information on these options please visit: http://www.hp.com/go/bladesystem.

A BladeSystem c3000 enclosure holds up to 8 server and/or storage blades plus redundant network and storage interconnects. It includes a shared, multi-terabit high-speed mid-plane for wire-once connectivity of server blades to network and shared storage. Power is delivered through a pooled power backplane that ensures the full capacity of the redundant hot-plug power supplies is available to all blades.

HP BladeSystem c3000 enclosure options:

- A single-phase enclosure available worldwide for use with in-rack PDUs & UPSs which accept C13/C14 power cords; or "
- Alternatively, in countries with low-line (100VAC to 110VAC) power outlets, the enclosure's power supplies can be connected directly to low-line wall outlets.
  NOTE: Caution: when connecting directly to wall outlets, customers should determine the maximum amperage of the wall outlet circuit to prevent power overload. See the Technical specification section later in this document for the individual power supply amperage.

Overview

- HP 1200W Common Slot Platinum Hot Plug Power Supply Kit (up to 6 total); or
- HP 1200W Common Slot -48VDC Hot Plug Power Supply Kit (up to 6 total)
- c-Class Active Cool fans (between 4 and 6 total) (if not part of an enclosure bundled part number)
- Redundant BladeSystem Onboard Administrator module
- DVD drive (if not part of an enclosure bundled part number)

The c3000 enclosure is 6U and holds up to 8 HP c-Class server blades:

- Up to 8 half-height server blades or 4 full-height server blades
- Up to 4 PCI expansion blades (storage, tape, etc)
- Or combinations of the above
  NOTE: For information on mixing half-height server blades, full-height server blades, and expansion blades, please see the section titled "Server Blade, Expansion Blade, and Fan Population Guidelines" later in this document.

Types of interconnect modules available: (up to 4 per enclosure)

- Ethernet Interconnect Switches
- Ethernet Pass-Thru modules
- Virtual Connect Ethernet modules
- Fibre Channel Interconnect Switches
- Virtual Connect Fibre Channel modules
- Fibre Channel Pass-Thru module
- For additional HP BladeSystem c-Class Interconnect and Mezzanine Components:
  http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html
  http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html

Infrastructure Management:

- HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports Windows -based central management servers.
- " HP Matrix Operating Environment for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. This ultimately enables them to dynamically keep pace with the organization's changing business requirements

HP BladeSystem c-Class Overview

HP BladeSystem c-Class c3000 Enclosure

A BladeSystem c3000 enclosure holds up to 8 server blades and up to 4 expansion blades (not exceeding 8 total blades) plus redundant or non-redundant network and storage interconnects. It includes a shared, multi-terabit high-speed mid-plane for wire-once connectivity of server blades to network and shared storage. Power is delivered through a pooled power backplane that ensures the full capacity of the power supplies is available to all blades.

Each c3000 enclosure is built with the following functions:

- Up to 8 half-height, 4 full-height server blades and/or 4 expansion blades per enclosure.
  NOTE: For information on mixing half-height server blades, full-height server blades, and expansion blades, please see the section titled "Server Blade, Expansion Blade, and Fan Population Guidelines" later in this document.
- Up to 3 redundant interconnect fabrics (Ethernet, FC, iSCSI, SAS, etc.) supported simultaneously within the enclosure.
- A single-phase power subsystem for flexibility in connecting to datacenter power, or to UPS's or to low-line wall outlets.
- Choice of AC or DC power supplies.
- PARSEC enclosure design - Parallel, redundant and scalable cooling and airflow design.
- Up to six (6) Active Cool fans
- Fully redundant design providing no single point of failure; redundant interconnections between servers and interconnect modules; a mid-plane with no active components; redundant cooling using Active Cool fans.
- Best performance per watt - lower wattage per server blade, in comparison to rack-mounted servers
- Full AC redundancy with no power zones.
- Single or dual Onboard Administrator management modules

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 at the deployment site.
- 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.
- An optional DVD drive for local software deployment, and HP SmartStart deployment
- An optional local KVM interface for connection to KVM switches.

A BladeSystem c3000 enclosure provides the following benefits:

- With local and remote hardware management integrated across the solution, one full enclosure can be managed as easily as one server.
- Scalable: Management and network interconnects extend scalability beyond a single enclosure, allowing resources to be pooled and shared across multiple enclosures.
- Investment protection: Accommodates multiple server and network designs in one enclosure.
- Lower costs per server, in comparison to rack-mounted servers

HP BladeSystem c-Class Overview

- Lower power consumption, in comparison to rack-mounted servers.
- Service and management: Allows multiple administrators to remotely access and maintain multiple servers & interconnect devices simultaneously.

HP ProLiant & Integrity Server Blades	Delivering best-in-class performance, choice and reliability on AMD Opteron™, Intel® Xeon® and Intel® Itanium® processors for Windows, Linux, Solaris, OpenVMS, or HP-UX based servers; the HP portfolio of server blades supports a variety of application requirements for scale-out architectures. HP offers one-, two-, four- and eight -processor server blades, with the widest range of performance, and form factors. For information please visit: http://www.hp.com/go/bladesystem.

HP D2200sb Storage Blade	**Direct attached storage** The D2220sb Storage Blade delivers direct attached storage for c-Class Gen8 blade servers, with support for up to twelve hot plug small form factor (SFF) SAS or SATA Midline hard disk drives or SAS/SATA SSDs. The enclosure backplane provides a PCI Express connection to the adjacent c-Class server blade and enables high performance storage access without any additional cables. The D2220sb Storage Blade features an onboard Smart Array P420i controller with 2GB flash-backed write cache, for increased performance and data protection. Up to eight D2220sb storage devices can be supported off a single BladeSystem c7000 enclosure for up to 115.2 TB of capacity. **Two ways to create shared storage with the D2220sb** Use HP StoreVirtual VSA software to turn the D2220sb into an iSCSI SAN for use by all servers in the enclosure and any server on the network. HP VSA software is installed in a virtual machine on a VMware ESX host server adjacent to the D2220sb. HP StoreVirtual VSA turns the D2220sb into a scalable and robust iSCSI SAN, featuring storage clustering for scalability, Network RAID for storage failover, thin provisioning, snapshots, remote replication, and cloning. Expand capacity within the same enclosure or to other BladeSystem enclosures by adding additional D2220sb Storage Blades and HP VSA licenses. A cost effective bundle of the D2220sb Storage Blade and a HP StoreVirtual VSA license makes purchasing convenient. If storage needs increase, add HP P4300 or P4500 systems externally and manage everything via a single pane of glass. The HP StoreEasy 3830 Gateway Storage Blade is a flexible storage server solution for BladeSystem environments. Combine the StoreEasy 3830with the D2220sb Storage Blade to enable file serving and iSCSI shared storage inside the BladeSystem enclosure. **NOTE:** The D2220sb requires a c3000 Enclosure configuration with 6 fans For more information, please visit: http://h18004.www1.hp.com/products/quickspecs/14507_div/14507_div.html

HP Ultrium Tape Blades	Tape blades are ideal for HP BladeSystem c-Class customers who need a data protection solution but are not connected into a Storage Area Network (SAN). They provide direct attach data protection for the adjacent server and network backup protection for all other data within the enclosure. The HP tape blades are the industry's first bladed tape drives and are developed exclusively for the BladeSystem c-Class enclosures. For more information, please visit: http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html

HP BladeSystem c-Class Overview

HP BladeSystem c-Class Interconnect Options

HP offers one of the broadest selections of interconnect fabric options in the industry to provide network, SAN/network attached storage (NAS), and cluster connectivity.
HP BladeSystem interconnects provide:

- New HP Virtual Connect devices, designed to reduce networking costs and simplify network configuration and provisioning.
- Seamless integration of Ethernet, FC, iSCSI, and SAS fabrics: Standard-based switch options include Cisco, Brocade, and HP products that integrate within your existing standards.
- Built-in redundancy: rear-mounting interconnect modules designed for redundant interconnections between server blades and switches.
- Cable reduction: Interconnect switches provide up to 32-to-1 network cable reductions per server blade enclosure

HP BladeSystem c-Class Interconnect and Mezzanine Components:
http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html
http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html

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 & Integrity Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

HP Simple Configurator

SCE is a guided self service tool to help sales and non technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance.
http://www.hp.com/products/configurator

HP Insight Management software

Insight Management

Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.

HP Insight Management lowers the cost of running your HP ProLiant servers by providing you with best-in-class management tools, including HP Insight Control, HP Virtual Connect Enterprise Manager (VCEM), and HP Matrix Operating Environment. Insight Management increases your productivity and reduces your operating costs to get you higher value from your HP ProLiant servers.

Electronic download of Insight Management Media

HP BladeSystem c-Class Overview

Insight Management software media is available for free download (not including license entitlement certificates) at this website: http://www.hp.com/go/insightupdates.

Software media available for download includes:

- HP Insight Control
- HP Insight Control for Microsoft® System Center
- HP Insight Control for VMware vCenter Server
- HP Virtual Connect Enterprise Manager (VCEM)
- HP Matrix Operating Environment

Customers will receive an Insight Control or Matrix Operating Environment license entitlement certificate via physical shipment or email. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s).

One year of 24x7 Software Technical Support and Updates are included with your purchased licenses.

HP provides a complete range of installation and support services to ensure the successful deployment and operations of your server infrastructure. For more information about support services and licensing options, see the following website: http://www.hp.com/go/insightsoftware

Insight Software Media Kit (DVDs)
Physical media (DVDs) are also available for purchase from HP or from your authorized reseller (PN 436222-B21)

Service Pack for ProLiant (SPP)	Customers should use the HP Service Pack for ProLiant to update firmware, drivers, and related utilities.: • Main SPP page: www.hp.com/go/spp • SPP download page: www.hp.com/go/spp/download
ProLiant Onboard Administrator	HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control, and the Matrix Operating Environment for ProLiant helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. See: www.hp.com/go/ProLiantOA
HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see http://www.hp.com/go/insightcontrol. HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive

HP BladeSystem c-Class Overview

delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight

HP Matrix Operating Environment

The HP Matrix Operating Environment (Matrix OE) for ProLiant and Integrity servers is an integrated command center that helps you instantly adjust to dynamic business demands. This advanced infrastructure management software lets you reduce the cost of common data center tasks by up to 40 percent while keeping pace with your changing business.

The HP Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HP CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS). For more information, see http://www.hp.com/go/matrixoe.

HP Power Advisor

The HP Power Advisor is a tool provided by Hewlett-Packard to assist in the estimation of power consumption and proper selection of components including power supplies at a system, rack, and multi-rack level. A variety of additional features are also provided including a condensed bill of materials, a cost of owner ship calculator, and a power report. The HP Power Advisor allows for the mixing of rack, blade, and other products in a single environment.
Available at: http://www.hp.com/go/hppoweradvisor

Warranty

Warranty - 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.

- Enclosure: Three-year parts and labor, on-site limited global warranty. Certain restrictions and exclusions apply
- Enclosure options: Fans, Power Supplies, BladeSystem Onboard Administrator, 1 Year parts only or enclosure warranty
- HP BladeSystem Interconnects: 1 Year parts and labor, on-site regardless of the warranty period for the system in which they are installed
- HP Storage Fibre Channel switches have a maximum warranty period of one (1) year regardless of the warranty period for the system in which they are installed
- Hard drives have either a one year or three year warranty; refer to specific hard drive QuickSpecs for details.

Service and Support

Service and Support	**HP Technology Services for Industry Standard Servers and BladeSystem** Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

Protect your business beyond warranty with HP Care Pack Services
HP Care Pack services offer complete care and support expertise with committed response choices designed to meet your IT and business needs.

HP Foundation Care services offer scalable reactive support-packages for HP servers and software. You can choose the type and level of service that is most suitable for your IT and business needs. HP Proactive Care delivers high levels of system availability through proactive service management and advanced technical response. HP Datacenter Care provides highly flexible environmental support to address unique customer business needs.

Choose recommended services for your c3000 BladeSystem enclosure or contact your HP sales representative or authorized HP ServiceOne partner for additional HP Care Pack services information

Recommended HP Care Pack Services for your HP product

Optimized Care	**3-Year HP 6 hour Call to Repair Response, Proactive Care** Combined reactive and proactive support for hardware and software helping optimize your systems and delivering high levels of availability through proactive service management and advanced technical response. Hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request. A Technical Account Manager, as your single point of contact, will own your call or issue end to end until resolved. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855EEE.pdf

HP Installation and Startup Service for HP BladeSystem c-Class Infrastructure for c3000 enclosure
Provides for hardware installation (c-Class ProLiant and Integrity server blades, storage blades, Ethernet Interconnects and Virtual Connect) and software installation and startup of a BladeSystem c3000 Infrastructure in a single enclosure including deployment of OS on all blades or deployment of OS (two blades) and HP Insight Control, plus Server Deployment (formerly RDP).
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-5964ENW.pdf

HP Installation and Startup Service for HP BladeSystem c-Class Enhanced Network
Provides for the configuration and testing of BladeSystem Ethernet interconnect switches and Virtual Connect to facilitate proper implementation of network protocols and access to advanced features.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4aa0-5969ENW.pdf

Standard Care	**3-Year HP 24x7 4 hour response, Proactive Care Service** This service gives you combined reactive and proactive support including rapid access to our Advanced Solution Center to manage and prevent problems and a Technical Support Specialist with a broad level of technical knowledge that will engage with additional technical expertise as needed from HP's vast global resources. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855EEE.pdf

HP Installation and Startup Service for HP BladeSystem c-Class Infrastructure for c3000 enclosure
Provides for hardware installation (c-Class ProLiant and Integrity server blades, storage blades, Ethernet Interconnects and Virtual Connect) and software installation and startup of a BladeSystem c3000 Infrastructure in a single enclosure including deployment of OS on all blades or deployment of OS on two

Service and Support

blades and HP Insight Control, plus Server Deployment (formerly RDP).
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-5964ENW.pdf

HP Installation and Startup Service for HP BladeSystem c-Class Enhanced Network
HP Provides for the configuration and testing of BladeSystem Ethernet interconnect switches to facilitate proper implementation of network protocols and access to advanced features.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4aa0-5969ENW.pdf

Related Services

HP Proactive Care Personalized Support - Environmental Option
The Personalized Support option provides an assigned Account Support Manager who can bring best practices from across the industry plus extra technical skills to your IT team. This option is only available as an add-on to HP Proactive Care Support.

HP Proactive Select Service
Provides a flexible way to purchase HP 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. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf

Additional HP Care Pack services can be found at: http://www.hp.com/go/cpc

Insight Online/Insight Remote Support

HP Insight Remote Support provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. This comes at no additional cost with your HP solution. Learn more about Insight Remote Support http://www.hp.com/go/insightremotesupport and Insight Online http://www.hp.com/go/insightonline

NOTE: Insight Remote Support is a prerequisite for Proactive Care. All blades within a single HP BladeSystem enclosure must be at the same service level.

HP Support Center

Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more http://www.hp.com/go/hpsc

HP's Support Center Mobile App allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

NOTE: HP Support Center Mobile App is subject to local availability.

Parts and Materials

HP will provide HP-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 HP due to malfunction

For more information

To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized ServiceOne partner. Or visit: www.hp.com/services/bladesystem

Pre-Configured Models

HP BladeSystem c-Class Server Blade Enclosures

NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.

NOTE: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

HP BLc3000 Platinum Enclosure with 4 AC Power Supplies 6 Fans ROHS 8 Insight Control Licenses   696908-B21

NOTE: Includes 4 1200W AC Common Slot Platinum Plus Hot Plug Power Supplies, 6 Active Cool 100 Fans, DVD drive, Rail Kit, Onboard Administrator DDR2 module, 4 6ft C13 to C14 PDU power cords, 7 bay blanks, and 8 Insight Control Licenses.

HP BLc3000 Platinum Enclosure with 4 AC Power Supplies 6 Fans ROHS Trial Insight Control License   696909-B21

NOTE: Includes 4 1200W AC Common Slot Platinum Plus Hot Plug Power Supplies, 6 Active Cool 100 Fans, DVD drive, Rail Kit, Onboard Administrator DDR2 module, 4 6ft C13 to C14 PDU power cords, 7 bay blanks, and 8 Insight Control Trial Licenses.

QuickSpecs

Configuration Information Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends contacting your local sales representative for information on Factory Integrated Model product offerings and requirements.

For a complete configuration of the HP BladeSystem, please do the following:

Step 1: Select desired model, configuration and quantity of HP ProLiant server and expansion blades

NOTE: HP BladeSystem c3000 and c7000 enclosures may support G1 through Gen8 server blades and Integrity server blades in the same enclosure, subject to support requirements of the Onboard Administrator. Please review the links below to specific blades for details.

NOTE: HP ProLiant G8 server blades and certain options require the latest version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For information on the latest firmware versions, please see the Blades Firmware Maintenance website at: http://h18004.www1.hp.com/products/blades/components/c-class-compmatrix.html.

NOTE: For server and expansion blade (storage, tape, and PCI Expansion) information, please visit: http://www.hp.com/go/bladesystem.

Step 2: Determine quantity of HP BladeSystem c-3000 Enclosures to purchase and choose Required Options

(One of the following from each list unless otherwise noted):

Select Base Server Blade Enclosure Configuration

HP BladeSystem c3000 c-Class Server Blade Enclosures	**Choose one of the following CTO enclosures**	
	HP BLc3000 Platinum Configure-to-order Enclosure with 6 Fans ROHS Trial Insight Control License	696910-B21
	NOTE: Includes no AC power supplies, 6 Active Cool 100 Fans, a DVD drive, rack rails, and a single DDR2 Onboard Administrator module.	
	HP Integrity BLc3000 CTO Enclosure	AH257C
	NOTE: Includes no AC power supplies, 6 Active Cool 100 Fans, a DVD drive, rack rails, and a single DDR2 Onboard Administrator module.	

Select additional optional enclosure options:

HP Redundant Onboard Administrator	HP BLc3000 Dual DDR2 Onboard Administrator	488100-B21
	NOTE: HP ProLiant G8 server blades and certain options require the latest version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For information on the latest firmware versions, please see the Blades Firmware Maintenance website at: http://h18004.www1.hp.com/products/blades/components/c-class-compmatrix.html.	
Additional HP c3000 Enclosure Power Supplies	**NOTE:** Please choose AC or DC power supplies.	
	NOTE: HP AC Common Slot Power supplies meet 80 Plus Platinum or Silver power efficiency requirements: (Platinum (94%) - PN 656364-B21and Silver (90%) - PN 500172-B21).The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publically posts the results on 80Plus.org.	
	NOTE: HP highly recommends using the HP Power Advisor tool to ensure the number of	

Configuration Information Factory Integrated Models

power supply options you have selected can fully support your BladeSystem configuration. The HP Power Advisor tool can be downloaded at www.hp.com/go/hppoweradvisor.
NOTE: For a full enclosure, you can either order 4 or more power supplies to support a N+1 redundant configuration or 6 power supplies to support a N+N redundant configuration.
NOTE: Each enclosure must include only 1 type of power supply. All power supplies must be AC or all DC power supplies. The Onboard Administrator will exhibit a mismatch error due to mixed power supplies until all power supplies are matched.

	HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21

NOTE: Platinum power supplies required to enable power discovery services.
NOTE: Include a 6ft C13 to C14 PDU power cord.

	HP 1200W Common Slot -48VDC Hot Plug Power Supply Kit	437573-B21

NOTE: DC power supplies contain a -48V DC power cord designed for in-rack DC power rectifiers.
NOTE: When this DC power supply (437573-B21) is ordered as a factory integrated enclosure option, standard AC supplies are not included in the order shipment. When this DC power supply is ordered with an enclosure, but not factory integrated, standard AC power supplies are included in the order shipment and DC power supplies are shipped separately.

HP c3000 KVM Modules and Adapters	HP BLc3000 KVM Option	437575-B21

NOTE: For use with in-rack KVM switches.

	HP KVM USB2 1-pack Interface Adapter	AF603A

NOTE: Order one KVM Adapter per c3000 enclosure, to support KVM switches accepting RJ45 cables. Please see the Options section of this QuickSpecs for additional product information.

HP Optional Power Cords	HP C20 - C13 WW 250V 15Amp 2.0m Jumper Cord	AF590A

NOTE: For use with PDU's accepting C20 power cords.
NOTE: Order 1 for each power supply.

	HP C13 - Nema 6-15P US 250V 15A JP 3.6m Power Cord	A0N33A

Step 3: Select additional (one to four) interconnects.

The following is a list of various HP BladeSystem c-Class interconnect modules (Virtual Connect, Ethernet, Fibre Channel, and SAS interconnects). A pair of interconnects must be ordered if redundancy is required. For detailed interconnect options consult the specific interconnect QuickSpecs: http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html.
NOTE: Options for specific c-Class interconnects are NOT included in the list below. Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.
NOTE: Interconnect Bay 1 must contain one of the "Ethernet" interconnect modules.

HP BladeSystem c-Class Ethernet Interconnects	HP Virtual Connect Flex-10/10D Module for c-Class BladeSystem	638526-B21
	HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem	455880-B21
	HP 6125G/XG Ethernet Blade Switch	658250-B21
	HP 6125G Ethernet Blade Switch	658247-B21
	HP 6120G/XG Ethernet Blade Switch	498358-B21
	HP 6120XG Blade Switch	516733-B21
	HP 1GB Ethernet Pass-Thru Module for c-Class BladeSystem	406740-B21
	HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem	538113-B21
	Cisco Catalyst 1/10GbE 3120X Blade Switch	451439-B21

Configuration Information Factory Integrated Models

	Cisco Catalyst 1GbE 3120G Blade Switch	451438-B21
	Cisco Catalyst Blade Switch 3020 for HP c-Class BladeSystem	410916-B21
	HP Cisco B22HP Fabric Extender for BladeSystem c-Class	641146-B21
	HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class	657787-B21

NOTE: The Cisco Fabric Extender for HP BladeSystem with 16 FET - (PN 657787-B21), comes packaged with 16 Cisco Fabric Extender Transceivers. These Cisco transceivers can be used to connect the Fabric Extender with a parent Nexus 5000 over optical cable up to 100 meters using OM3 grade fiber.

	HP GbE2c Layer 2/3 Ethernet Blade Switch	438030-B21

NOTE: HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem (P/N 571956-B21) is not compatible with the c3000 enclosure

HP SAS Switch	HP 6Gb SAS Switch Single Pack for HP BladeSystem c-Class	BK763A
	HP 6Gb SAS Switch Dual Pack for HP BladeSystem c-Class	BK764A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/13960_div/13960_div.html (Worldwide)

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/13170_div/13170_div.html (Worldwide)

HP BladeSystem c-Class FC SAN Interconnects	HP Virtual Connect 8Gb 24-port Fibre Channel Module for c-Class BladeSystem	466482-B21
	HP Virtual Connect 8Gb 20-port Fibre Channel Module for c-Class BladeSystem	572018-B21
	HP 4GB Fibre Channel Pass-thru Module for c-Class BladeSystem	403626-B21
	Brocade 8/12c SAN Switch for BladeSystem c-Class	AJ820B
	Brocade 8/24c SAN Switch for BladeSystem c-Class	AJ821B
	Brocade 8/24c Power Pack+ SAN Switch for BladeSystem c-Class	AJ822B
	Cisco MDS 8/12c Fabric Switch for HP BladeSystem c-Class	AW563A
	Cisco MDS 8/24c Fabric Switch for HP BladeSystem c-Class	AW564A
	HP MDS 8/12c Fabric Switch 12-port Upgrade LTU	TA804A

NOTE: Licensed per switch.

	HP MDS Fabric Manager Server for BladeSystem c-Class LTU	TC316A

NOTE: Licensed per switch.

	HP MDS Enterprise Package for BladeSystem c-Class LTU	TC317A

NOTE: Licensed per switch.

	HP MDS Fabric Manager Server Enterprise Package for BladeSystem c-Class LTU	TC318A

NOTE: Licensed per switch.

Step 4: Select rack power distribution for installing the enclosure into a rack.

NOTE: A pair of PDUs must be ordered for AC Feed redundancy. If AC redundancy is not required, a single PDU or UPS may be acceptable.

HP Monitored Power Distribution Unit	HP 8.6kVA 24A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF504A
	HP 11kVA 16A Single Input Three Phase INTL Monitored Power Distribution Unit	AF508A
	HP Two C13 PDU Extension Bar	AF500A

Configuration Information Factory Integrated Models

Step 5: Select Wall Outlet Power Cords (For connection to standard wall outlets)

NOTE: Select one wall outlet power cord for each power supply when plugging the power supplies into a wall outlet.

NOTE: Wall Outlet power cords should only be used with low-line (100v to 110V) power sources. If high-line power outlets are required, safety regulations require the use of a PDU or a UPS between the c3000 enclosures power supplies and wall outlets.

NOTE: A standard 6ft PDU power cord (C13 to C14) is included with each AC power supply, so these wall outlet power cords are not required if you plan to plug the power supplies into a PDU or UPS.

Order the appropriate power cord for your countries standard electrical outlets.

HP Power Cords	HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
	NOTE: HP Power cord (6 ft) 1.83 meter 10A C-13-UL domestic power cord, for grounded USA 110V wall outlets.	
	HP C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord	AF572A
	NOTE: HP Power cord 2 meter C13 Japan low-line power cord, for Japanese 100V wall outlets.	
	HP C20 - C13 WW 250V 15Amp 2.0m Jumper Cord	AF590A
	NOTE: For use with PDUs accepting C20 power cords.	

NOTE: For additional power cable information, please visit:

http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html

Related Options

HP c3000 Enclosure Options	HP BLc7000 Miscellaneous Blanks Option Kit	412148-B21

HP c3000 Enclosure Options

HP BLc7000 Miscellaneous Blanks Option Kit — 412148-B21
NOTE: Contains 1 each of c3000/c7000 Active Cool Fan blank, c3000/c7000 interconnect module blank, c7000 Onboard Administrator blank, c3000 local KVM blank, c3000 power supply blank, c7000 power supply blank, c3000 DVD blank, and a c3000 mini-divider.
NOTE: This kit should only be ordered to replace lost or damaged blanks.

HP BLc7000 Server Blank w/Coupler Option — 412150-B21
NOTE: This is option contains one half-height device blank and a coupler that can be used for the c3000 and c7000 enclosures.
NOTE: Order quantity of one 412150-B21 for filling a half-height bay; the coupler is not used.
NOTE: Order quantity of two 412150-B21 for filling a full-height bay. One coupler is installed between the two half-height blanks to be connected together to create a full-height blank.
NOTE: This kit should only be ordered to replace lost or damaged blanks.

HP c3000 Rack Brackets

HP BLc3000 10000 Series Rack Shipping Bracket Option — 461384-B21
NOTE: Required when shipping a c3000 enclosure in a HP 10000 series rack. Please order 1 kit per enclosure.

HP Onboard Administrator

HP BLc3000 DDR2 Onboard Administrator Rotate LCD Kit — 590863-B21
NOTE: HP ProLiant G8 server blades and certain options require the latest version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For information on the latest firmware versions, please see the Blades Firmware Maintenance website at:
http://h18004.www1.hp.com/products/blades/components/c-class-compmatrix.html.
NOTE: For field upgrades of previous generation enclosures only.
NOTE: This Redundant Onboard Administrator module supports either single mode, or dual/redundant mode Onboard Administrators.

HP BLc3000 Dual DDR2 Onboard Administrator — 488100-B21
NOTE: Second Onboard Administrator Module for the DDR2 OA module.
NOTE: Support for second Order Administrator Module for c3000 Enclosure.
NOTE: This module fits into an HP c3000 DDR2 Onboard Administrator.

Related Options

HP c-Class Power Supply	**NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 1200W, Climate Savers Computing Initiative SILVER and ECOS Consulting 80 Plus; (Platinum (94%) - PN 656364-B21 and Silver (90%) - PN 500172-B21).	
	NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publically posts the results on 80Plus.org.	
	NOTE: For c-3000 Low-line Power Cords, please order the appropriate power cord for your countries standard electrical outlets. Please see Step 5 above for power cord part numbers.	
	HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21
	NOTE: Platinum power supplies required to enable power discovery services	
	NOTE: Includes a 6ft C13 to C14 PDU power cord.	
	HP 1200W Common Slot -48VDC Hot Plug Power Supply Kit	437573-B21
	NOTE: DC power supplies contain a -48V DC power cord designed for in rack DC power rectifiers.	
	NOTE: When this DC power supply (437573-B21) is ordered as a factory integrated enclosure option, standard AC supplies are not included in the order shipment. When this DC power supply is ordered with an enclosure, but not factory integrated, standard AC power supplies are included in the order shipment and DC power supplies are shipped separately.	
HP c3000 KVM Module and Adapters	HP BLc3000 KVM Option	437575-B21
	NOTE: For use with in-rack KVM switches	
	HP KVM USB2 1-pack Interface Adapter	AF603A
	NOTE: Order one KVM Adapter per c3000 enclosure, to support KVM switches accepting RJ45 cables. Please see the Options section of this QuickSpecs for additional product information.	
HP BladeSystem c-Class Ethernet Interconnects	HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem	455880-B21
	HP 6125G Ethernet Blade Switch	658247-B21
	HP 6125G/XG Ethernet Blade Switch	658250-B21
	HP 6120G/XG Ethernet Blade Switch	498358-B21
	HP 6120XG Blade Switch	516733-B21
	HP 1GB Ethernet Pass-Thru Module for c-Class BladeSystem	406740-B21
	NOTE: The Ethernet Pass-Thru Module is shipped as a single unit and should be ordered in quantities of two.	
	Cisco Catalyst 1/10GbE 3120X Blade Switch	451439-B21
	Cisco Catalyst 1GbE 3120G Blade Switch	451438-B21
	Cisco Catalyst Blade Switch 3020 for HP c-Class BladeSystem	410916-B21
	HP GbE2c Layer 2/3 Ethernet Blade Switch	438030-B21
	NOTE: HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem (P/N 571956-B21) is not compatible with the c3000 enclosure	

Related Options

HP BladeSystem c-Class FC SAN Interconnects	HP Virtual Connect 8Gb 24-port Fibre Channel Module for c-Class BladeSystem	466482-B21
	HP Virtual Connect 8Gb 20-port Fibre Channel Module for c-Class BladeSystem	572018-B21
	HP 4GB Fibre Channel Pass-thru Module for c-Class BladeSystem	403626-B21
Brocade SAN Switch for HP BladeSystem c-Class	Brocade 8/12c SAN Switch for BladeSystem c-Class	AJ820B
	Brocade 8/24c SAN Switch for BladeSystem c-Class	AJ821B
	Brocade 8/24c Power Pack+ SAN Switch for BladeSystem c-Class	AJ822B
	Brocade 4/12 SAN Switch Upgrade RTU for HP BladeSystem c-Class	AE373A
Cisco MDS Fabric Switch for HP BladeSystem c-Class	Cisco MDS 8/12c Fabric Switch for HP BladeSystem c-Class	AW563A
	Cisco MDS 8/24c Fabric Switch for HP BladeSystem c-Class	AW564A
	HP MDS Fabric Manager Server Enterprise Package for BladeSystem c-Class LTU	TC318A
	HP B-series 8/12c SAN Switch for BladeSystem c-Class 12-port Upgrade RTU	T5517A
	Cisco MDS 9124e Switch for BladeSystem c-Class 12-port Upgrade LTU	T5169A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/13821_div/13821_div.html (Worldwide)

HP Insight Software	**HP Insight Control**	
	HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 8 Svr FIO Electronic License	C6N32ABE
	HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 16Svr FIO Electronic License	C6N33ABE
	HP Insight Control Server Provisioning Media Kit	BD883A

NOTE: HP Insight Control 7.2 introduces Insight Control server provisioning, a new capability ideal for multi-server OS and firmware provisioning to ProLiant and BladeSystem servers. Insight Control server provisioning is included and licensed as part of HP Insight Control. A media kit, "HP Insight Control server provisioning USB media kit" (# BD883A), including a USB, is available for customers who require a physical copy of the media loaded with Insight Control server provisioning software. Please note that this media kit is separate and in addition to the "HP Insight Management DVD media kit" (#C6N31A).

HP Insight Management Media Kit   C6N31A
NOTE: HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.
NOTE: Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates.
NOTE: The "for bundling with an enclosure" license kits can only be ordered together with a BladeSystem c3000 or c7000 enclosure on the same order.
NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.
NOTE: For additional License Kits, please see the QuickSpecs at:

Related Options

http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html (Worldwide)

HP iLO Advanced for BladeSystem License	HP iLO Advanced for BladeSystem including 1yr 24x7 Support Eight Server License	512489-B21

HP Virtual Connect Enterprise Manager	HP Virtual Connect Enterprise Manager including 1yr 24x7 Support Single c3000 Enclosure Lic **NOTE:** This license allows 1 BL-c3000 enclosure to be managed with VCEM. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. **NOTE:** For additional License Kits, please visit: http://h18000.www1.hp.com/products/quickspecs/12860_div/12860_div.html (Worldwide)	459867-B21

HP c-Class Storage Blades	HP D2200sb PCIe Storage Blade **NOTE:** Please see the HP D2200sb Storage Blade QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13714_div/13714_div.html	AP880A
	HP D2220sb PCIe and StoreVirtual VSA Bundle **NOTE:** Includes the D2220sb Storage Blade and a single HP StoreVirtual VSA license. VSA software is installed in a virtual machine on a VMware ESX/ESXi & Microsoft Hyper-V host server adjacent to the D2220sb. **NOTE:** Includes 3yr NBD Parts-Only Warranty Service for D2220sb hardware. **NOTE:** Includes 3yr 9x5 remote technical support for HP StoreVirtual VSA software and free updates. **NOTE:** HP StoreVirtual VSA is supported on VMware ESX/ESXi & Microsoft Hyper-V.	QW914A
	HP D2220sb PCIe w/(12) 900 GB 6G SAS HDD Bundle **NOTE:** Includes 3yr NBD Parts-Only Warranty Service for D2220sb hardware	QW915A
	HP D2220sb Build-to-order Storage Blade **NOTE:** Includes 3yr NBD Parts-Only Warranty Service	QW917A
	HP D2220sb Configure-to-order Storage Blade **NOTE:** Includes 3yr NBD Parts-Only Warranty Service **NOTE:** The D2220sb requires a c7000 Enclosure configuration with 10 fans. **NOTE:** Please see the HP D2220sb Storage Blade QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14507_div/14507_div.html.	QW918A
	HP BL c-Class PCI Express Mezzanine Pass Thru Option Kit **NOTE:** The HP PCI Express Mezzanine Pass-Thru Card (P/N 431643-B21) is required to support an expansion blade with the ProLiant BL620c G7 Server Blade. Up to two expansion blades are supported per server mix and match (Ultrium Tape, D2220sb/D2220sb PCIe Storage, and/or PCI Expansion Blades). See the "Expansion blade" section later in this document for more information.	431643-B21

Related Options

HP Ultrium Tape Blades	HP StoreEver LTO-5 Ultrium SB3000c Tape Blade	BS580B
	HP StoreEver LTO-4 Ultrium SB1760c Tape Blade	AQ697B

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html (Worldwide)

	HP BL c-Class PCI Express Mezzanine Pass Thru Option Kit	431643-B21

NOTE: The HP PCI Express Mezzanine Pass-Thru Card (P/N 431643-B21) is required to support an expansion blade with the ProLiant BL620c G7 Server Blade. Up to two expansion blades are supported per server mix and match (Ultrium Tape, D2220sb/D2220sb PCIe Storage, and/or PCI Expansion Blades). See the "Expansion blade" section later in this document for more information.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html (Worldwide)

HP Expansion Blade	HP BLc PCI Expansion Blade	448018-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/12753_div/12753_div.html (Worldwide)

	HP BL c-Class PCI Express Mezzanine Pass Thru Option Kit	431643-B21

NOTE: The HP PCI Express Mezzanine Pass-Thru Card (P/N 431643-B21) is required to support an expansion blade with the ProLiant BL620c G7 Server Blade. Up to two expansion blades are supported per server mix and match (Ultrium Tape, D2220sb/D2220sb PCIe Storage, and/or PCI Expansion Blades). See the "Expansion blade" section later in this document for more information.

HP Power Distribution Units	**NOTE:** A pair of PDUs must be ordered for AC feed redundancy.

NOTE: Additional HP Power Distribution Units are available than those listed below. For a complete list of all HP PDUs and additional information please visit:
www.hp.com/go/rackandpower.

Monitored PDU

HP Monitored Power Distribution Unit: Full Rack Version

HP 8.6kVA 24A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF504A
HP 8.3kVA 40A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF506A
HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF510A

HP Monitored Power Distribution Unit: Half Rack Version

HP 4.9kVA 24A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF914A
HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF915A

NOTE: Please see the following QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html (Worldwide)

Modular PDUs

Related Options

NOTE: Please see the following QuickSpecs for additional options including shorter jumper cables and country specific power cords:
http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html (Worldwide)

HP Two C13 PDU Extension Bar	AF500A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/pdu (Worldwide)

NOTE: Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.

HP Intelligent Power Distribution Units (iPDU)

NOTE: A pair of PDUs must be ordered for AC feed redundancy.

NOTE: Additional HP Power Distribution Units are available than those listed below. For a complete list of all HP PDUs and additional information please visit: www.hp.com/go/rackandpower.

iPDU Core Units

HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A

iPDU Extension Bars

HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html (Worldwide)

HP Uninterruptible Power Systems

NOTE: A pair of PDUs must be ordered for AC feed redundancy.

NOTE: Additional HP Power Distribution Units are available than those listed below. For a complete list of all HP PDUs and additional information please visit: www.hp.com/go/rackandpower.

HP Rack-mountable UPS

HP R1500 G3 Uninterruptible Power Supply (UPS)

HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A
HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html (Worldwide)

HP R/T3000 G2 Uninterruptible Power System (UPS)

HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A
HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A

Related Options

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html
(Worldwide)

R5000 Uninterruptible Power System (UPS)

HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/14109_div/14109_div.html
(Worldwide)

R7000 Uninterruptible Power System (UPS)

HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
HP R7KVA 4U IEC-32A High Voltage INTL Uninterruptible Power System	AF463A
HP R5KVA and R7KVA 3U Extended Runtime Module	AF464A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/14110_div/14110_div.html
(Worldwide)

HP Basic Power Distribution Units

NOTE: Additional HP Power Distribution Units are available than those listed below. For a complete list of all HP PDUs and additional information please visit: www.hp.com/go/rackandpower.

HP 1.9kVA 120 Volt 12 Outlet NA/JP Basic Power Distribution Unit

HP 1.9kVA 120 Volt 12 Outlet NA/JP Basic Power Distribution Unit	H5M54A
HP 2.8kVA 120 Volt 18 Outlet NA/JP Basic Power Distribution Unit	H5M55A
HP 3.6kVA 200-240 Volt 12 Outlet WW Basic Power Distribution Unit	H5M56A
HP 3.6kVA 200-240 Volt 20 Outlet WW Basic Power Distribution Unit	H5M57A
HP 4.9kVA 208 Volt 20 Outlet NA/JP Basic Power Distribution Unit	H5M58A
HP 4.9kVA 208 Volt 30 Outlet NA/JP Basic Power Distribution Unit	H5M59A
HP 8.3kVA 208 Volt 36 Outlet NA/JP Basic Power Distribution Unit	H5M60A
HP 8.6kVA 208 Volt Three Phase 18 Outlet NA/JP Basic Power Distribution Unit	H5M61A
HP 8.6kVA 208 Volt Three Phase 30 Outlet NA/JP Basic Power Distribution Unit	H5M62A
HP 5.7kVA 208 Volt Three Phase 27 Outlet NA/JP Dual Voltage Basic Power Distribution Unit	H5M63A
HP 8.6kVA 208 Volt Three Phase 30 Outlet NA/JP Dual Voltage Basic Power Distribution Unit	H5M64A
HP 11kVA 400 Volt Three Phase 42 Outlet NA Basic Power Distribution Unit	H5M67A
HP 7.3kVA 230 Volt 20 Outlet INTL Basic Power Distribution Unit	H5M68A
HP 7.3kVA 230 Volt 30 Outlet INTL Basic Power Distribution Unit	H5M70A
HP 11kVA 230 Volt 36 Outlet INTL Basic Power Distribution Unit	H5M71A
HP 11kVA 400 Volt Three Phase 30 Outlet INTL Basic Power Distribution Unit	H5M72A
HP 11kVA 400 Volt Three Phase 42 Outlet INTL Basic Power Distribution Unit	H5M73A
HP Hardwired 200-240 Volt 36 Outlet WW Basic Power Distribution Unit	H5M75A
HP 13.2kVA 480 Volt Three Phase 15 Outlet NA Basic Power Distribution Unit	H3X07A
HP 19.9kVA 480 Volt Three Phase 30 Outlet NA Basic Power Distribution Unit	H3X08A

HP 277 Volt options for H3X07A and H3X08A

Related Options

	HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14557_div/14557_div.html (Worldwide)
NOTE: Additional HP Power Distribution Units are available. For a complete list of all HP PDUs and additional information please visit: www.hp.com/go/rackandpower.

HP Power Cords	HP C20 - C13 WW 250V 15Amp 2.0m Jumper Cord	AF590A

NOTE: For use with PDUs that accept C20 power cords.
NOTE: For additional power cable information, please visit:
http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html.

HP Rack Series (Graphite Metallic)	**HP Intelligent Series Rack**	
	HP 642 1075mm Pallet Intelligent Series Rack	BW903A
	HP 642 1075mm Shock Intelligent Series Rack	BW904A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/14223_div/14223_div.html (Worldwide)
NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower

HP Rack Options	**Keyboards and Monitors**	
	HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
	HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
	HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
	HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
	HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
	HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
	HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
	HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
	HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
	HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13972_div/13972_div.html (Worldwide)

	HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A
	HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor	AZ871A
	HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor	AZ872A
	HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor	AZ873A
	HP TFT7600 G2 KVM Console Rackmount Keyboard IT Monitor	AZ874A
	HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor	AZ875A

Related Options

HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor	AZ876A
HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor	AZ877A
HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor	AZ878A
HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor	AZ879A
HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor	AZ880A
HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor	AZ881A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A
HP TFT7600 G2 KVM Console Rackmount Keyboard RU Monitor	AZ883A
HP TFT7600 G2 KVM Console Rackmount Keyboard Intl Monitor	AZ884A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor	AZ885A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18006.www1.hp.com/products/quickspecs/13731_div/13731_div.html

NOTE: For additional information regarding Rack Options, please see the following URL:

http://www.hp.com/go/rackandpower

HP Server Console Switch G2 with Virtual Media & CAC

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html (Worldwide)

HP IP Console Switch G2 with Virtual Media & CAC

HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A
HP KVM CAT5 1-pack USB Interface Adapter	336047-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html (Worldwide)

HP KVM Switches

HP BladeSystem c-Class KVM Interface Adapter	AF605A
HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A
HP TAA 0x2x16xKVM Server Console G2 Switch	AF626A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html (Worldwide)

HP 1x4 USB/PS2 KVM Console Switch	AF611A
HP 1x4 KVM Console 6ft USB Cable	AF613A

NOTE: required for supporting USB peripherals.

QuickSpecs

Related Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12662_div/12662_div.html (Worldwide)

NOTE For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL:
http://www.hp.com/go/kvm

Rack Options

HP 11K G2 Rack Tie Down Kit	AF076A

NOTE: For additional information regarding Rack Options, please see the following URL:
http://www.hp.com/go/rackandpower.

HP Care Pack Services

NOTE: Some options, such as Fibre Channel switches for the HP c-Class BladeSystem, are not covered under the c3000 enclosure Care Packs and carry separate Care Packs. Care Pack service level support for these options should always be uplifted to match existing storage or server service level.

Please view the option QuickSpecs or contact your HP sales representative or HP authorized ServiceOne partner for Care Pack information.

Proactive Care Services

HP 3 year 4 hour 24x7 c3000 Enclosure Proactive Care Service	U3C42E
HP 3 year 6 hour Call To Repair 24x7 c3000 Enclosure Proactive Care Service	U3C45E
HP 3 year 4 hour 24x7 c3000 Enclosure with Insight Control Proactive Care Service	U3P19E
HP 3 year 6 hour Call To Repair 24x7 c3000 Enclosure with Insight Control Proactive Care Service	U3P22E

HP Proactive Care Personalized Support (Environmental Option)

HP 3 year ISS ProactiveCare Personalized Support	U6W98E

Support Plus 24

HP 3 year Support Plus 24 Insight Control BladeSystem c3000 Service	UF540E

Installation & Start-up Services

HP Installation c3000 Enclosure and Server Blade Service	UH749E
HP Startup BladeSystem c3000 Infrastructure Service	UF817E
HP Startup BladeSystem c3000 + Operating System Service	UF818E
HP Startup BladeSystem c3000 Enclosed Network Service	UF814E
HP Hardware Install c-Class Enclosure and Server Blade Service	UE494E

Additional HP Care Pack services can be found at:
http://www.hp.com/go/cpc

Power Specifications

HP 1200W Common Slot Platinum Hot Plug Power Supply Kit							
Part Number	500172-B21						
Input Voltage Range (V rms)	100-240						
Frequency Range (Nominal) (Hz)	50 / 60						
Nominal Input Voltage (Vrms)	**100**	**120**	**200**	**208**	**220**	**230**	**240**
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	9.1	8.4	6.7	6.4	6.1	5.8	5.5
Maximum Rated Input Wattage Rating (Watts)	897	999	1321	1319	1317	1315	1314
Maximum Rated VA (Volt-Amp)	909	1012	1338	1337	1334	1332	1331
Efficiency (%)	89.2	90.1	90.9	91.0	91.1	91.2	91.3
Power Factor	0.998						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	3061	3408	4506	4501	4493	4487	4483

HP 1200W Common Slot Silver Hot Plug Power Supply Kit							
Part Number	500172-B21						
Input Voltage Range (V rms)	100-240						
Frequency Range (Nominal) (Hz)	50 / 60						
Nominal Input Voltage (Vrms)	**100**	**120**	**200**	**208**	**220**	**230**	**240**
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	9.7	9.0	7.0	6.8	6.4	6.1	5.9
Maximum Rated Input Wattage Rating (Watts)	930	1034	1348	1348	1348	1348	1348
Maximum Rated VA (Volt-Amp)	970	1079	1406	1406	1406	1406	1406
Efficiency (%)	86	87	89	89	89	89	89
Power Factor	0.97						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	3174	3530	4600	4600	4600	4600	4600

QuickSpecs

Power Specifications

HP 1200W Common Slot -48VDC Hot Plug Power Supply Kit							
Part Number	437573-B21						
Input Voltage Range (V rms)	36-72						
Frequency Range (Nominal) (Hz)	DC						
Nominal Input Voltage (Vrms)	**100**	**120**	**200**	**208**	**220**	**230**	**240**
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	9.7	9.0	7.0	6.8	6.4	6.1	5.9
Maximum Rated Input Wattage Rating (Watts)	930	1034	1348	1348	1348	1348	1348
Maximum Rated VA (Volt-Amp)	970	1079	1406	1406	1406	1406	1406
Efficiency (%)	86	87	89	89	89	89	89
Power Factor	0.97						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	3174	3530	4600	4600	4600	4600	4600
NOTE: To review maximum system power ratings for facilities planning purposes use the HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/HPPowerAdvisor							

Server Blade, Expansion Blade, and Fan Population Guidelines

Fan & power supply bay numbering
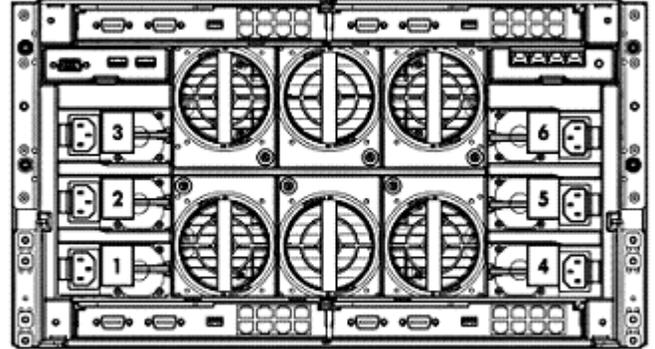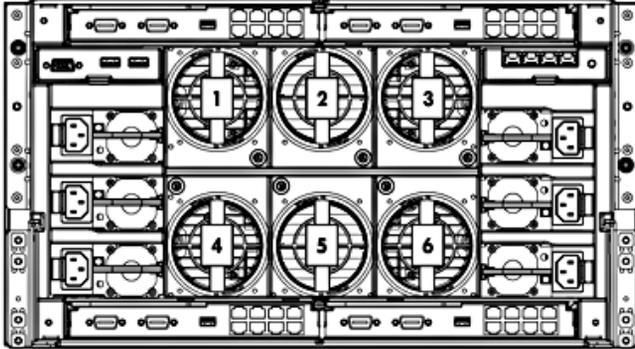
Rack power supply bay numbering   **Fan bay numbering**

Power supplies and fans must be placed in the following bays

Number of Fans	Fan Bays Used
4	2, 4, 5, 6
6	All bays filled

Number of Power Supplies (for PS Redundant or non-redundant mode)	**Power Supply Bays Used**
2	1 & 2
3	1, 2, & 3
4	1, 2, 3, & 4
5	1 through 5
6	All bays

Number of Power Supplies (for AC Redundant mode)	**Place Power Supplies in Bays:**
2	1 & 4
4	1, 2, 4, & 5
6	All bays filled

NOTE: With four fans, the enclosure will support only 4 half-height server blades in the bottom half of the enclosure device bays. With six fans, all 8 server bays may be filled.

NOTE: For correct operation, fans and server blades must be installed in the correct bays. The Onboard Administrator will ensure that fans and blades are correctly placed before allowing the system to power on.

Server Blade, Expansion Blade, and Fan Population Guidelines

The c3000 enclosure is divided into 2 zones by the horizontal support metalwork. The lower zone (zone 1) includes bays 1, 2, 5, and 6. The upper zone (zone 2) contains bays 3, 4, 7, and 8. Within each zone a removable bay divider is used to support half-height devices. To install a full-height blade in either zone this bay divider must be removed.

NOTE: Please read the RTF card (included with each c3000 enclosure) and the "HP BladeSystem c3000 Setup and Installation Guide" for more information on the use, installation, and removal of bay dividers.

Half-height server blade bay numbering
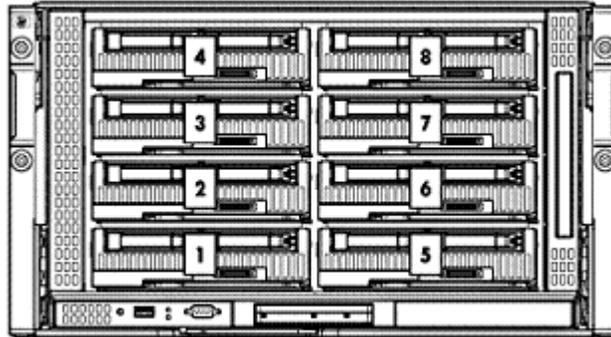
HP BladeSystem c3000 Enclosure – Racks

1. Device Bay 1
2. Device Bay 2
3. Device Bay 3
4. Device Bay 4
5. Device Bay 5
6. Device Bay 6
7. Device Bay 7
8. Device Bay 8

NOTE: Half-height server blades should be populated from the bottom half of the enclosure, in the following order (bays 1, 5, 2, 6, 3, 7, 4, & 8)

Server Blade, Expansion Blade, and Fan Population Guidelines

Full-height server blade bay numbering
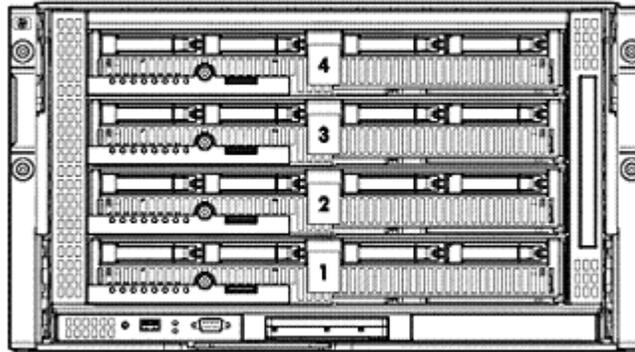
HP BladeSystem c3000 Enclosure – Racks

1. Device Bay 1
2. Device Bay 2
3. Device Bay 3
4. Device Bay 4

NOTE: Full-height servers should be populated from the bottom to the top (bays 1 through 4). With four fans, only the bottom 2 bays can be used. With six fans, all bays can be used.

Full-height and half-height server blade mixed configurations

Each enclosure zone can support up to 2 full-height server blades or up to 4 half-height server blades. Additionally, zone 2 supports a mix of 1 full-height server blade and up to 2 half-height server blades; a mixture of blades sizes is not supported in zone 1.

An overview of the mixed server blade population rule best practices are summarized below. For detailed expansion blade rules and guidelines, please see the documentation that ships with the enclosure and server blade.

1. One full-height server and up two half-height servers may be mixed in zone 2 (the upper zone); mixing is not allowed in zone 1 (the lower zone).
2. The full-height server must be installed in the lower bays 3 and 7 and half-height servers directly above in bays 4 and 8.
3. Half-height server blades should be installed in the order of bays 4 then 8.
4. Before installing any full-height server blades, remove the bay divider that is used to support half-height devices.
5. A mini-divider is installed between bays 4 and 8. A mini-divider is shipped with each c3000 enclosure.

NOTE: Please read the RTF card (included with each c3000 enclosure) and the "HP BladeSystem c3000 Setup and Installation Guide" for more information on the use, installation, and removal of bay dividers and the mini-divider for mixed configurations.
NOTE: Expansion blades can be installed in zone 2 along with both full-height and half-height blades. For more information, please see the "Expansion blades" section later in this document.

Server Blade, Expansion Blade, and Fan Population Guidelines

Expansion blades

Expansion blades consist of storage blades, tape blades, and the PCI Expansion Blade. Up to 4 expansion blades are supported per HP BladeSystem c-Class c7000 Enclosure. Expansion blades may be installed in the same zone as half-height and full-height server blades. An expansion blade is installed directly above a server blade, also known as a partner server blade. An overview of the expansion blade population rule best practices are summarized below. For detailed expansion blade rules and guidelines, please see the documentation that ships with the enclosure and expansion blade.

Expansion blade population best practices for half-height server blades:

1. One half-height partner server blade supports one expansion blade.
2. Identify the partner server blade to be installed with the expansion blade. The two blades always occupy a pair of slots as follows: 1 & 2, 3 & 4, 5 & 6, and 7 & 8.
3. Each c3000 zone contains a removable divider (also known as a device bay shelf) that is used to support half-height devices. This divider is remains installed whether the half-height devices are server or expansion blades.

Expansion blade population best practices for full-height server blades:

1. A full-height server blade may be mixed with half-height expansion blades in zone 2 (the upper zone) of the c3000 enclosure; mixing is not allowed in zone 1 (the lower zone).
2. The full-height partner server blade must be installed in the lower bays 3 and 7 and half-height devices directly above in bays 4 and 8.
3. The full-height server partner blade supports one or two expansion blades in bays 4 and 8.
4. Before installing any full-height server blades, remove the bay divider that is used to support half-height devices.
5. A mini-divider is installed between bays 4 and 8. A mini-divider is shipped with each c3000 enclosure.
6. If installing only one expansion blade, install the expansion blade in bay 8. The remaining half-height bay (bay 4) may be populated with either a half-height device bay blank of a half-height server blade; the half-height server blade may not be partnered with the expansion blade.
7. If installing two expansion blades, the expansion blades may be two storage blades, two tape blades, two PCI Expansion Blades, or a mixture of any two.

NOTE: Please read the RTF card (included with each c3000 enclosure) and the "HP BladeSystem c3000 Setup and Installation Guide" for more information on using bay dividers and the mini-divider for mixed configurations.
NOTE: For detailed expansion blade rules and guidelines, please see the documentation that ships with the enclosure and expansion blade.

Technical Specifications

Enclosure Unit – Rack Model	Dimensions (H x W x D) (with bezel)		10.4 x 19.1 x 32.977 in (265 x 485 x 835 mm)
	Weight (approximate)	Maximum (one enclosure with 8 blades and 4 interconnects installed)	300 lb (136 kg)
		Minimum (one enclosure without blades and interconnects)	130 lb (59 kg)
	Input Requirements (per AC power supply)	Rated Line Voltage	90 – 132 VAC 180 – 264 VAC
		Rated Input Current	9.3 A (at 100 VAC) 9.7 A (at 120VAC) 7.8 A (at 200 VAC) 7.2 A (at 208 VAC) 6.8 A (at 220 VAC) 6.2 A (at 240 VAC)
		Rated Input Frequency	47 to 63 Hz
	BTU Rating	Maximum per power supply	2728 BTU/hr (at 100 VAC) 3069 BTU/hr (at 120VAC) 4092 BTU/hr (at 200 to 240 VAC)
	Power Specifications		To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: www.hp.com/go/bladesystem/powercalculator
	Power Supply Output (per power supply)	Rated Steady-State Power	800 W (at 100 VAC) 900 W (at 120 VAC) 1200 W (at 200 to 240 VAC)
		Maximum Peak Power	880 W (at 100 VAC) 990 W (at 120 VAC) 1350 W (at 200 to 240 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

Technical Specifications

Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise		Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).
	Idle	depends on server configuration & mix of server blades
	Operating	varies by CPU utilization, server configuration, and mix of server blades

Option Kits	**Power Supply Dimensions**	Size	Height: 1.515 in (38.48 mm) Width: 3.4 in (86.36 mm) Depth: 7.5 in (190.5 mm)
		Weight	2.5 lbs (1.13 kg)
	Fan Option Shipping Dimensions	Size	Height: 8.75 in (223 mm) Width: 9.75 in (248 mm) Depth: 15.88 in (403 mm)
		Weight	4.0 lbs (1.8 kg)

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.

Technical Specifications