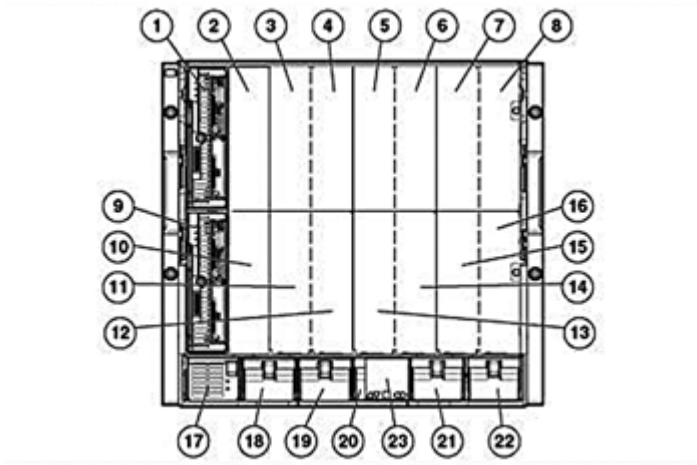
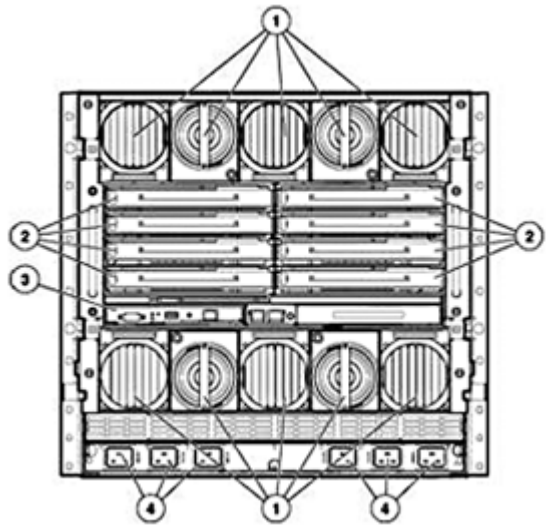
Overview



HP BladeSystem c7000 Enclosure - Front View

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
9. Device Bay 9
10. Device Bay 9
11. Device Bay 11
12. Device Bay 12
13. Device Bay 13
14. Device Bay 14
15. Device Bay 15
16. Device Bay 16
17. Power Supply Bay 1
18. Power Supply Bay 2
19. Power Supply Bay 3
20. Power Supply Bay 4
21. Power Supply Bay 5
22. Power Supply Bay 6
23. Insight Display



HP BladeSystem c7000 Enclosure - Rear View

1. Active Cool 200 Fans & fan bays
2. Interconnect Bays
3. BladeSystem Onboard Administrator
4. Power Inputs (single phase model shown)

Overview

What's New

Pre-configured HP BladeSystem c7000 Platinum Enclosure offering with HP OneView management software licenses pre-installed on the Onboard Administrator.

A HP BladeSystem solutions start with either a BladeSystem c7000 or c3000 Enclosure. For the c7000 Enclosure, customers can add c7000 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 HP OneView or Insight Control management software. For information on these options please visit: http://www.hp.com/go/bladesystem.

HP BladeSystem c-Class c7000 Enclosure

A BladeSystem c7000 enclosure holds up to 16 servers and/or up to 8 expansion blades (not exceeding 16 total 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.

Each c7000 enclosure is built with the following functions:

- Up to 16 half-height , 8 full-height server blades, and/or 8 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 4 redundant interconnect fabrics (Ethernet, FC, IB, iSCSI, SAS, etc.) supported simultaneously within the enclosure.
- Choice of a single-phase, three-phase or a -48V DC power subsystem for flexibility in connecting to datacenter power.
- HP Thermal Logic technology for lower power consumption and airflow.
- Four (4) or Ten (10) Active Cool 200 fans as standard. For redundancy and improved power consumption and acoustics; additional Active Cool 200 Fan kits can be added for a maximum of 10 fans.
- Redundant hot-plug cooling, redundant hot-plug power supplies, redundant connections, redundant interconnect modules, and optional redundant BladeSystem Onboard Administrator management modules.
- Lowest cost of ownership.
- Full AC redundancy with no power zones.

An BladeSystem Onboard Administrator management module is built in to the enclosure with the following functions:

- Robust, multiple enclosure setup and control.
- Reports asset and inventory information for the devices in the enclosure.
- Reports thermal and power information, including real-time actual power usage per server and per enclosure.
- Front-mounted Insight Display for easy management within the datacenter.
- Integrated access to all server blade iLOs from a single cable.
- Provides integrated access to interconnect bay device management ports from the single BladeSystem 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.

A BladeSystem c7000 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
- Lower power consumption, in comparison to rack-mounted servers.
- Lower airflow requirements, in comparison to rack-mounted servers

HP BladeSystem c-Class Overview

HP c3000 Enclosure

For customers that need a smaller system the c3000 is the perfect solution. Supporting up to 8 blades and 4 interconnects the c3000 enclosure provides an ideal solution for small and medium businesses and remote sites for more information refer to the c3000 QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html

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- , or 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

Do you need a direct attached or shared storage solution within your BladeSystem enclosure?

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 3830 with the D2220sb Storage Blade to enable file serving and iSCSI shared storage inside the BladeSystem enclosure.
NOTE: The D2220sb requires a c7000 Enclosure configuration with 10 fans.

For more information, please visit:
http://h18004.www1.hp.com/products/quickspecs/14507_div/14507_div.html

HP BladeSystem c-Class Overview

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.

Dynamic Power Capping

HP Dynamic Power Capping is the industry's first and only power capping solution that lets you reclaim trapped power and cooling capacity without putting electrical infrastructure or server performance at risk. The enclosure Dynamic Power Cap will be shared amongst all of the installed devices and individual server caps will be changed to match the server load. This will optimize the performance of the servers while ensuring that the enclosure stays below the cap value.

Rack Airflow Requirements

Rack 10000 G2 series cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The G2 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

NOTE: For operation with the DC Input Module the G2 1000 Series Rack Extension is required to allow DC Power Cabling to be installed.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- The clearance from face of rack to inside of the front door needs to be 1.75" minimum.
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).
- Depth: Minimum 39.4 inches (1000mm) for AC power, 47 inches (1200mm) for DC Power Input
- Adjustable rack rails are shipped with each enclosure:
  - Minimum rail length: 25 inches (635mm)
  - Maximum rail length: 34 inches (864mm)

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

HP BladeSystem c-Class Overview

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 Insight Dynamics / 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
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 Insight Dynamics / Matrix Operating Environment

Customers will receive an Insight Control or Insight Dynamics 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
Service Pack for ProLiant	Customers should use the HP Service Pack for ProLiant (SPP) to perform firmware, driver, and related software updates. • SPP main webpage: www.hp.com/go/spp • SPP downloads webpage: www.hp.com/go/spp/download
HP Integrated Lights-Out (iLO)	HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: www.hp.com/go/iLO.
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, 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 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). **NOTE:** For more information, visit: http://www.hp.com/go/matrixoe.

HP BladeSystem c-Class Overview

HP OneView Software

The HP OneView architecture combines server, storage, and networking with control of datacenter environmentals into a single, integrated management platform. Architected to deliver lifecycle management for the complete Converged Infrastructure, it facilitates collaboration, removes friction, collapses cycle times, eliminates error-prone work, and accelerates time to value. HP OneView combines management of servers and virtual connect with open integration to automate and customize existing tools and processes. With OneView, you'll work smarter-with greater visibility and control-and fully capitalize on the benefits of a Converged Infrastructure.

For more information on HP OneView management, see: http://www.hp.com/go/oneview.

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, tower, blade, and other products in a single environment.
Available at: 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

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 a recommended service appropriate to your ISS or Integrity product 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 c7000 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 c7000 Infrastructure in a single enclosure including deployment of OS (two servers), HP Insight Control and 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 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 c7000 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 c7000 Infrastructure in a single enclosure including deployment of OS (two servers), HP Insight Control and Server Deployment (formerly RDP).

Service and Support

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 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.

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.

Recommended HP Care Pack Services for your HP Integrity product

Optimized Care

3- Year HP Critical Service
This service offers high performance reactive services and proactive components designed to minimize planned and unplanned downtime. The key feature of this service is an assigned support team including an Account Support Manager (ASM), Remote Support Account Advocate, Mission Critical Hardware Specialist and access to HP's Global Mission Critical Solution Center to help resolve complex issues faster. Reactive support components of this service include 24x7 HW and SW coverage, 6-hour Call-to-Repair commitment, enhanced parts inventory and accelerated escalation management.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-1613ENW.pdf.

HP Integrity C7000 Enclosure Startup Service
This service provides efficient and effective HP Integrity Blade infrastructure setup for the server infrastructure including all hardware and networking components.
http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA1-1651ENW.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 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 Proactive 24
This service offers improved stability, availability, and operational effectiveness through integrated hardware and software support services that combine industry-leading reactive technical assistance with proactive account services delivered by an ASM, giving you IT management support with a team of service specialists. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-1614ENW.pdf.

HP Integrity C7000 Enclosure Startup Service
This service provides efficient and effective HP Integrity Blade infrastructure setup for the server infrastructure including all hardware and networking components.
http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA1-1651ENW.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 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.

Service and Support

Related Services	**HP Factory Express** When you add additional enclosures to your environment, consider HP Factory Express. HP Factory Express provides customization and deployment services along with your storage and server purchases. You can customize hardware to your exact specifications in the factory-helping speed deployment. http://hp.com/go/factoryexpress.
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 personalize 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 Channel 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 BLc7000 Platinum Enclosure with 1 Phase 6 Power Supplies 10 Fans ROHS 16 OneView Licenses	763850-B21
HP BLc7000 Platinum Enclosure with 1 Phase 6 Power Supplies 10 Fans ROHS 16 Insight Control Licenses	681842-B21
HP BLc7000 Platinum Enclosure w/ 1 Phase 2 Power Supplies 4 Fans ROHS Trial Insight Control License	681840-B21

NOTE: The above c7000 Platinum Enclosures come standard with increased mid-plane bandwidth, intelligent infrastructure (2400W Platinum Hot Plug Power Supplies, Intelligent Power Module for Power Discovery Services, and Location Discovery Services), a BladeSystem Onboard Administrator with KVM, 15 device bay blanks, and one worldwide 250W C19 - C20 2.0m jumper cord per power supply.

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 Gen8 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-Class Enclosures to purchase and choose Required Options (One of the following from each list unless otherwise noted):

NOTE: Each HP BladeSystem c-Class Server Blade Enclosure holds up to 16 half-height blades. Server blanks will be shipped in all empty bays.

Required Options (one of the following from each category unless otherwise noted)

HP BladeSystem BLc7000 c-Class Server Blade Enclosures	HP BLc7000 Configure-to-order Platinum Enclosure with ROHS Trial Insight Control License	681844-B21
	HP Integrity BLc7000 CTO Enclosure	AD361D
	NOTE: The above enclosures include one BladeSystem Onboard Administrator with KVM and 4 Active Cool 200 Fans. The power module, power supply kits, power cables, interconnects, etc are added per the steps below. **NOTE:** All c-Class enclosures support HP ProLiant, Integrity and blades in either mixed or homogenous configurations. The AD361D enclosure is suggested for configurations primarily used with Integrity blades.	
HP c-Class Power Systems	**c-Class Power Modules** (1 per enclosure)	
	HP BLc7000 Single Phase FIO Intelligent Power Module **NOTE:** This option enables HP Power Discovery Services; with the correct power supplies (see power supplies below that match/enable HP Power Discover Services).	677595-B21
	HP BLc7000 1 PH FIO Power Module Option **NOTE:** This option disables HP Power Discovery Services.	413379-B21
	HP BLc7000 3 PH Intl FIO Power Module Option **NOTE:** This option disables HP Power Discovery Services.	413381-B21
	HP BLc7000 3 PH NA/JP FIO Power Module Option **NOTE:** This option disables HP Power Discovery Services. **NOTE:** If Three Phase Power Module selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required.	413380-B21
	HP BLc7000 -48V DC Power Input Module **NOTE:** This option disables HP Power Discovery Services.	AH331A

Configuration Information Factory Integrated Models

c-Class Power Supply (Up to 6)

NOTE: Mixing of Power Supplies Is Not Supported on BladeSystem c7000 Enclosures, except during hot swaps to different level power supplies. The Onboard Administrator will exhibit a mismatch error due to mixed power supplies until all power supplies are matched.
NOTE: If Three Phase Power Module selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required.
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."

HP 6X 2650W Platinum Hot Plug FIO Power Supply Kit **NOTE:** This option enables HP Power Discovery Services. **NOTE:** The bundle includes a quantity of 6 HP 2650W Platinum 94% PSU so a full enclosure can be configured with a single part number. **NOTE:** Includes six WW 250W C19 - C20 2.0m Jumper Cords. **NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2650W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus Platinum.	733460-B21
HP 2650W Platinum Hot Plug Power Supply Kit **NOTE:** This option enables HP Power Discovery Services. **NOTE:** Includes one WW 250W C19 - C20 2.0m Jumper Cord. **NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2650W, 94%: Climate Savers Computing Initiative Platinum and ECOS Consulting 80 Plus Platinum.	733459-B21
HP 6X 2400W Platinum Hot Plug Factory Integrated Power Supply Kit **NOTE:** This option enables HP Power Discovery Services. **NOTE:** The bundle includes a quantity of 6 HP 2400W Platinum 94% PSU so a full enclosure can be configured with a single part number. **NOTE:** Includes six WW 250W C19 - C20 2.0m Jumper Cords. **NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2400W, 94%: Climate Savers Computing Initiative Platinum and ECOS Consulting 80 Plus Platinum.	517521-B22
HP 2400W Platinum Hot Plug Power Supply Kit **NOTE:** This option enables HP Power Discovery Services. **NOTE:** Includes one WW 250W C19 - C20 2.0m Jumper Cord. **NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2400W, 94%: Climate Savers Computing Initiative Platinum and ECOS Consulting 80 Plus Platinum.	588603-B21
HP 6X 2400W Gold Hot Plug Factory Integrated Power Supply Kit **NOTE:** This option disables HP Power Discovery Services. **NOTE:** Includes six WW 250W C19 - C20 2.0m Jumper Cords. **NOTE:** The bundle includes a quantity of 6 HP 2400W High Efficiency PSU so a full enclosure can be configured with a single part number.	517521-B21
HP 2400W Gold Hot Plug Power Supply Kit **NOTE:** This option disables HP Power Discovery Services. **NOTE:** Includes one WW 250W C19 - C20 2.0m Jumper Cord.	499243-B21

Configuration Information Factory Integrated Models

	HP 2250W -48VDC Hot Plug Power Supply Kit **NOTE:** This option disables HP Power Discovery Services. **NOTE:** Only compatible with -48V DC Power Input Module.	AH332A
HP Cooling Options	**c-Class Active Cool Fan** (Up to 6)	
	HP BLc 6X Active Cool 200 Factory Integrated Fan Option **NOTE:** The bundle includes a quantity of 6 HP Active Cool 200 Fans so a full enclosure can be configured with a single part number.	517520-B21
	HP BLc7000 Enclosure HP Single Active Cool Fan Option Kit **NOTE:** A minimum of 4 Active Cool 200 Fans is required, 8 Active Cool 200 Fans can support a full blade enclosure, 10 Active Cool 200 Fans should be ordered for reduced power consumption and noise reduction. **NOTE:** Single-phase models may require additional power supplies. Fans should be added to provide redundancy, reduce power consumption and reduce noise. **NOTE:** Three-phase models require a minimum of 6 Active Cool 200 Fans. **NOTE:** Some blade configurations require 10 fans.	412140-B21

Step 3: Select an optional software bundle (if nothing is selected the enclosure will ship with 16 Insight Control Trial Licenses):

HP OneView Software	HP OneView incl 3yr 24x7 Supp Enclosure Bundle 16 Svr E-LTU **NOTE:** Server provisioning capability (i.e. 'Insight Control server provisioning') is included and licensed as part of HP OneView. This capability is ideal for multi-server OS and driver provisioning to ProLiant and BladeSystem servers. A media kit ("HP Insight Control server provisioning USB media kit", BD883A), which includes a USB flash drive, is available for customers who require a physical copy of the software on media. This media kit is separate and in addition to the "HP OneView Media Kit", E5Y37A. **NOTE:** Onview licenses ship without media. The HP OneView Media Kit can be ordered separately (part number E5Y37A), or can be downloaded at: http://www.hp.com/go/oneview.	E5Y41AAE
HP Insight Software	HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 8 Svr FIO Electronic License **NOTE:** This license supports HP ProLiant c-Class blade servers. **NOTE:** Must be purchased as an option to an HP BladeSystem enclosure. FIO can only be ordered as part of a factory-configured platform. Customer will receive a printed license entitlement certificate via physical shipment.	C6N32ABE

Step 4: Select optional Redundant BladeSystem Onboard Administrator Capability

HP c-Class Enclosure Options	HP BLc7000 Onboard Administrator with KVM Option	456204-B21
	NOTE: The HP c7000 OA supports the mixing with the HP c7000 OA with KVM. The HP c7000 OA with KVM must be the active OA to provide the enclosure KVM feature. The KVM menu has an OA CLI button at the bottom, which allows an OA administrator to log into the OA and be able to force a takeover so the OA with KVM will become the standby OA. The OA Firmware Sync feature cannot be used to update mismatched OA modules. Mismatched OA firmware versions between the original c7000 OA and c7000 OA with KVM require the administrator to use the GUI or CLI to update the OA from a file (http, ftp, tftp, local client file using the GUI or USB key containing the OA firmware file). **NOTE:** Models of the c7000 enclosure (part numbers 681844-B21 and AD361D) come with a BladeSystem Onboard Administrator with KVM as standard. Order this part number (456204-B21) when a second redundant BladeSystem Onboard Administrator is desired for a c7000 enclosure. **NOTE:** HP ProLiant Gen8 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.	

Step 5: Select 1 or more interconnect modules for each enclosure

The following is a list of various HP BladeSystem c-Class interconnect modules (Virtual Connect, Ethernet, Fibre Channel, InfiniBand, 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-10/10D Module Enterprise Edition for BLc7000 Option	662048-B21

HP BladeSystem c-Class Network Interconnects	HP Virtual Connect Flex-10/10D Module for c-Class BladeSystem	638526-B21
	HP Virtual Connect FlexFabric 10/24 Enterprise Edition BLc7000 Option **NOTE:** Includes 2 x HP Virtual Connect FlexFabric 10Gb/24-port modules plus 1 x VCEM BL-c7000 enclosure license. Customer will receive a printed license entitlement certificate and 2 Virtual Connect modules as a single deliverable. The license entitlement certificate must be redeemed online or via fax to obtain the VCEM license activation key.	605865-B21
	HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem	571956-B21
	HP 6125G Ethernet Blade Switch	658247-B21
	HP 6125G/XG Ethernet Blade Switch	658250-B21
	HP X130 10G SFP+ LC SR Transceiver	JD092B
	HP B-series 16Gb SFP+ Long Wave 10km Transceiver	QK725A
	HP 6120G/XG Ethernet Blade Switch	498358-B21
	HP 6120XG Blade Switch	516733-B21

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	HP 1GB Ethernet Pass-Thru Module for c-Class BladeSystem	406740-B21
	HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem	538113-B21
	Mellanox SX1018HP Ethernet Switch for c-Class BladeSystem	689638-B21
	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 Cisco B22HP Fabric Extender for BladeSystem c-Class	641146-B21
	HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class	657787-B21
	HP GbE2c Layer 2/3 Ethernet Blade Switch	438030-B21
	NOTE: The HP BladeSystem c-Class Network Interconnects ship as single units. The above interconnects must be ordered in quantities of two for redundancy support.	
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 6Gb SAS Switch QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13960_div/13960_div.html (Worldwide)	
HP BladeSystem c-Class 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
	Cisco MDS 9124e Switch for BladeSystem c-Class 12-port Upgrade LTU	T5169A
	Brocade 16Gb/28 SAN Switch for BladeSystem c-Class	C8S46A
	Brocade 16Gb/16 SAN Switch for BladeSystem c-Class	C8S45A
	Brocade 16Gb/28 SAN Switch Power Pack+ for BladeSystem c-Class	C8S47A
	Brocade 8 and 16Gb SAN Switch for HP BladeSystem c-Class 12-port Upgrade LTU	T5517A
Optional Network Cabling	**Hardware**	
	Optical Transceivers (SFPs)	
	Short Wave	
	HP 8Gb Shortwave B-series Fibre Channel 1 Pack SFP+ Transceiver	AJ716B
	HP B-series 16Gb SFP+ Short Wave Transceiver	QK724A
	Long Wave	
	HP 8Gb Long Wave B-series 10km Fibre Channel 1 Pack SFP+ Transceiver	AJ717A
	HP B-series 16Gb SFP+ Long Wave 10km Transceiver	QK725A
	Extended Long Wave	
	HP B-series 8Gb Extended Long Wave 25km Fibre Channel SFP+ Transceiver 1 Pack	AW538A
HP BladeSystem	HP 4X QDR QLogic InfiniBand Switch Module for c-Class BladeSystem	505958-B21

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InfiniBand Interconnects	QLogic InfiniBand 4X QDR Management Module for c-Class BladeSystem	505959-B21
	HP 4X QDR InfiniBand Switch Module for c-Class BladeSystem	489184-B21
	HP 4X FDR InfiniBand Managed Switch Module for c-Class BladeSystem	648311-B21
	HP 4X FDR InfiniBand Switch Module for c-Class BladeSystem	648312-B21
	NOTE: Please see the InfiniBand QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12586_div/12586_div.html (Worldwide)	

Step 6: Select rack power distribution unit (PDU)

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 Power Distribution Units (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 11kVA 16A Single Input Three Phase INTL Monitored Power Distribution Unit	AF508A
	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 17.3kVA 48A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF916A
	HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF915A
	HP 7.3kVA 32A Single Input Three Phase INTL Intelligent Modular Power Distribution Unit	AF536A
	HP 22kVA 32A Single Input Three Phase INTL Monitored Power Distribution Unit	AF917A
	NOTE: Please see the Monitored Power PDU QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html (Worldwide)	
	HP Modular Power Distribution Units	
	HP 17.3kVA 48A Three Phase NA/JP Modular Power Distribution Unit	AF511A
	HP 14.4kVA 40A Three Phase NA/JP Modular Power Distribution Unit	AF519A
	HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A
	HP 8.6kVA 24A Three Phase NA/JP Modular Power Distribution Unit	AF512A
	HP 11kVA 16A Three Phase INTL Modular Power Distribution Unit	AF513A
	HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D75
	HP 9.2kVA 40A High Voltage INTL Core Modular Power Distribution Unit	252663-B34
	HP 7.3kVA 32A High Voltage INTL Core Modular Power Distribution Unit	252663-B33
	HP 4.9kVA 24A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D74

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html (Worldwide)

HP Intelligent Power Distribution Units (iPDU)	**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 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF523A
	HP 11.4kVA 16A 415V Three Phase L22-20 NA Core Intelligent Power Distribution Unit	AF900A
	HP 17.3kVA 24A 415V Three Phase L22-30 NA Core Intelligent Power Distribution Unit	AF902A
	HP 17.3kVA 24A 415V Three Phase IEC309 NA Core Intelligent Power Distribution Unit	AF901A
	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
	HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF527A
	HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
	HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
	HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
	HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
	NOTE: Please see the iPDU QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html (Worldwide)	

Step 7: Select optional Power Cords

HP Intelligent Power Distribution Units Power cords (HP C19 to C20)	**NOTE:** Order with HP Single Phase FIO Intelligent Power Module for c-Class BladeSystem (P/N 677595-B21).	
	HP 2.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK738A
	HP 2.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK739A
	HP 2.5m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK740A
	HP 2.5m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK741A
	HP 3.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK742A
	HP 3.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK743A
	HP 1.37m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK744A
	HP 1.37m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK745A
HP Power Distribution Units Power cords (HP C19 to C20)	HP C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord	AF575A
	HP C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord	AF574A
	HP C19 - C20 WW 250V 16Amp 2.5m Jumper Cord	295633-B22
	HP C19 - C20 WW 250V 16Amp 4.5m Jumper Cord	E7804A

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Additional HP Power Cords	**HP LV Power Cords 100 - 120V AC**	
	HP C19 - Nema 5-20P US/CA 125V 20Amp 4.5m Power Cord	E7802A
	HP C19 - Nema 5-15 US/CA 125V 15Amp 3.6m Power Cord	235603-001
	HP HV Power Cords 200 - 240V AC	
	HP C19 -Nema L6-30P US/CA 250V 16Amp 4.5m Power Cord	E7805A
	HP C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord	AF593A
	HP C19 - NBR-14136 BR 250V 16Amp 2.5m Power Cord	AF592A
	HP C19 - BS-1363/A UK/HK/SG 250V 13Amp 3.6m Power Cord	359615-031
	HP C19 - CEE-VII EU 250V 16Amp 3.6m Power Cord	AF576A
	HP C19 - AS3112-3 AU/NZ 250V 15Amp 3.6m Power Cord	AF577A
	HP C19 - SABS-164 ZA 250V 16Amp 3.6m Power Cord	AF579A
	HP C19 - CEI-23-50 IT/CL 250V 16Amp 3.6m Power Cord	AF580A
	HP C19 - IEC-309 DK/SE/AR 250V 16Amp 3.6m Power Cord	AF581A
	HP C19 - IS-1293 IN/PK/BD 250V 16Amp 2.5m Power Cord	AF582A
	HP C19 - ISI-32 IL 250V 16Amp 2.5m Power Cord	AF583A
	HP C19 - GB-1002 CN 250V 16Amp 2.5m Power Cord	AF584A
	HP C19 - CNS-690 TW 250V 16Amp 2.5m Power Cord	AF585A
	HP 240 VAC 4.5M Unterminated End NA Power Cord	E7806A
	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 Enclosure Options	HP BLc7000 Onboard Administrator with KVM Option **NOTE:** The HP c7000 OA supports the mixing with the HP c7000 OA with KVM. The HP c7000 OA with KVM must be the active OA to provide the enclosure KVM feature. The KVM menu has an OA CLI button at the bottom, which allows an OA administrator to log into the OA and be able to force a takeover so the OA with KVM will become the standby OA. The OA Firmware Sync feature cannot be used to update mismatched OA modules. Mismatched OA firmware versions between the original c7000 OA and c7000 OA with KVM require the administrator to use the GUI or CLI to update the OA from a file (http, ftp, tftp, local client file using the GUI or USB key containing the OA firmware file). **NOTE:** Models of the c7000 enclosure (PN 681840-B21, 681842-B21, and 681844-B21) come with a BladeSystem Onboard Administrator with KVM as standard. Order (P/N 456204-B21) when a second redundant BladeSystem Onboard Administrator is desired for a c7000 enclosure. **NOTE:** HP ProLiant Gen8 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.	456204-B21
	HP BLc7000 10000 Series Rack Shipping Bracket Option **NOTE:** The shipping bracket is required when shipping a c7000 enclosure when installed in a rack. It is not required for normal operation.	433718-B21
	HP c-Class BladeSystem Miscellaneous Blanks Option Kit **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.	412148-B21
	HP c-Class BladeSystem Bay Blank with Coupler Option **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.	412150-B21
HP Power Supplies	**NOTE:** Mixing of Power Supplies Is Not Supported on BladeSystem c7000 Enclosures, except during hot swaps to different level power supplies. OA will exhibit a mismatch error due to mixed power supplies until all power supplies are matched. **NOTE:** If Three Phase Power Module selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required. **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."	

Related Options

	HP 2650W Platinum Hot Plug Power Supply Kit **NOTE:** This option enables HP Power Discovery Services. **NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2650W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus Platinum.	733459-B21
	HP 2400W Platinum Hot Plug Power Supply Kit **NOTE:** This option enables HP Power Discovery Services. **NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2400W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus Platinum.	588603-B21
	HP 2400W Gold Hot Plug Power Supply Kit **NOTE:** Supplied with 2m/6ft IEC C20 - C19 jumper cord. **NOTE:** This option disables HP Power Discovery Services. **NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2400W, 92%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus Platinum.	499243-B21
	HP 2250W -48VDC Hot Plug Power Supply Kit **NOTE:** This option disables HP Power Discovery Services. **NOTE:** Only compatible with -48V DC Power Input Module.	AH332A
HP Cooling Options	**HP c-Class Active Cool Fan**	
	HP BLc7000 Enclosure HP Single Active Cool Fan Option Kit **NOTE:** A minimum 4 Active Cool 200 Fans is required, 8 Active Cool 200 Fans can support a full blade enclosure, 10 Active Cool 200 Fans should be ordered for reduced power consumption and noise reduction. Some blade configurations require 10 fans.	412140-B21
HP BladeSystem c-Class Network Interconnects	HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem	455880-B21
	HP Virtual Connect Flex-10 Ethernet Module Enterprise Edition for BLc7000 Option **NOTE:** Includes 2 x HP Virtual Connect Flex-10 10Gb Ethernet modules plus 1 x VCEM BL-c7000 enclosure license. Customer will receive a printed license entitlement certificate and 2 Virtual Connect modules as a single deliverable. The license entitlement certificate must be redeemed online or via fax to obtain the VCEM license activation key **NOTE:** For additional license kits, please visit: http://h18000.www1.hp.com/products/quickspecs/12860_div/12860_div.html (Worldwide)	591973-B21
	HP Virtual Connect FlexFabric 10/24 Enterprise Edition BLc7000 Option **NOTE:** Includes 2 x HP Virtual Connect FlexFabric 10Gb/24-port modules plus 1 x VCEM BL-c7000 enclosure license. Customer will receive a printed license entitlement certificate and 2 Virtual Connect modules as a single deliverable. The license entitlement certificate must be redeemed online or via fax to obtain the VCEM license activation key.	605865-B21
	HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem	571956-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

Related Options

	HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem	538113-B21
	Mellanox SX1018HP Ethernet Switch for c-Class BladeSystem	689638-B21
	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 Cisco B22HP Fabric Extender for BladeSystem c-Class	641146-B2
	HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class	657787-B21
	HP GbE2c Layer 2/3 Ethernet Blade Switch	438030-B21
	NOTE: The HP BladeSystem c-Class Network Interconnects ship as single units. The above interconnects must be ordered in quantities of two for redundancy support.	
HP BladeSystem c-Class 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
	Cisco MDS 9124e Switch for BladeSystem c-Class 12-port Upgrade LTU	T5169A
	Brocade 16Gb/28 SAN Switch for BladeSystem c-Class	C8S46A
	Brocade 16Gb/16 SAN Switch for BladeSystem c-Class	C8S45A
	Brocade 16Gb/28 SAN Switch Power Pack+ for BladeSystem c-Class	C8S47A
	Brocade 4/12 SAN Switch Upgrade RTU for HP BladeSystem c-Class	AE373A
	HP MDS 8/12c Fabric Switch 12-port Upgrade LTU **NOTE:** Licensed per switch.	TA804A
	HP StoreFabric Data Center Network Manager BladeSystem LTU **NOTE:** Installed on DCNM Server, each license can be assigned to only one switch.	TC367A
	HP MDS Enterprise Package for BladeSystem c-Class LTU **NOTE:** Licensed per switch.	TC317A
	HP MDS Fabric Manager Server Enterprise Package for BladeSystem c-Class LTU **NOTE:** Licensed per switch.	TC318A
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 6GB SAS Switch QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13960_div/13960_div.html (Worldwide)	
HP BladeSystem InfiniBand Interconnects	HP 4X QDR QLogic InfiniBand Switch Module for c-Class BladeSystem	505958-B21
	QLogic InfiniBand 4X QDR Management Module for c-Class BladeSystem	505959-B21
	HP 4X QDR InfiniBand Switch Module for c-Class BladeSystem **NOTE:** Quad Data Rate (QDR) InfiniBand Switch Modules are only supported in the RoHS 6 of 6 compliant enclosures and G6 Blades.	489184-B21

Related Options

	HP 4X FDR InfiniBand Managed Switch Module for c-Class BladeSystem	648311-B21
	HP 4X FDR InfiniBand Switch Module for c-Class BladeSystem	648312-B21
	NOTE: Please see the InfiniBand QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12586_div/12586_div.html (Worldwide)	
HP Optical Drives	HP Integrity USB External DVD/RW Drive	AT120A
HP Insight Software	**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 **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).	BD883A
	HP Insight Management Media Kit **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 Management 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: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html (Worldwide)	C6N31A

Related Options

HP OneView Software	HP OneView incl 3yr 24x7 Supp Enclosure Bundle 16 Svr E-LTU **NOTE:** Server provisioning capability (i.e. 'Insight Control server provisioning') is included and licensed as part of HP OneView. This capability is ideal for multi-server OS and driver provisioning to ProLiant and BladeSystem servers. A media kit ("HP Insight Control server provisioning USB media kit", BD883A), which includes a USB flash drive, is available for customers who require a physical copy of the software on media. This media kit is separate and in addition to the "HP OneView Media Kit", E5Y37A. **NOTE:** Onview licenses ship without media. The HP OneView Media Kit can be ordered separately (part number E5Y37A), or can be downloaded at: http://www.hp.com/go/oneview.	E5Y41AAE
	HP OneView Media Kit Phys No Lic	E5Y37A
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 c7000 Enclosure Lic **NOTE:** This license allows 1 BL-c7000 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)	459864-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	QW918A

Related Options

	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.	
	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
	HP StoreEasy 3830 Gateway Storage Blade	B7E01A
HP Expansion Blades	HP BLc PCI Expansion Blade	448018-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12753_div/12753_div.html (Worldwide)	
	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
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: http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html (Worldwide)	
	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 Power Cords	**HP LV Power Cords100 - 120V AC**	
	HP C19 - Nema 5-20P US/CA 125V 20Amp 4.5m Power Cord	E7802A
	HP C19 - Nema 5-15 US/CA 125V 15Amp 3.6m Power Cord	235603-001
	HP C19 - C20 Jumper Cords	
	HP C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord	AF575A
	HP C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord	AF574A
	HP C19 - C20 WW 250V 16Amp 2.5m Jumper Cord	295633-B22
	HP C19 - C20 WW 250V 16Amp 4.5m Jumper Cord	E7804A
	HP HV Power Cords 200 - 240V AC	
	HP C19 -Nema L6-30P US/CA 250V 16Amp 4.5m Power Cord	E7805A
	HP C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord	AF593A
	HP C19 - NBR-14136 BR 250V 16Amp 2.5m Power Cord	AF592A
	HP C19 - BS-1363/A UK/HK/SG 250V 13Amp 3.6m Power Cord	359615-031
	HP C19 - CEE-VII EU 250V 16Amp 3.6m Power Cord	AF576A
	HP C19 - AS3112-3 AU/NZ 250V 15Amp 3.6m Power Cord	AF577A
	HP C19 - SABS-164 ZA 250V 16Amp 3.6m Power Cord	AF579A
	HP C19 - CEI-23-50 IT/CL 250V 16Amp 3.6m Power Cord	AF580A
	HP C19 - IEC-309 DK/SE/AR 250V 16Amp 3.6m Power Cord	AF581A
	HP C19 - IS-1293 IN/PK/BD 250V 16Amp 2.5m Power Cord	AF582A
	HP C19 - ISI-32 IL 250V 16Amp 2.5m Power Cord	AF583A
	HP C19 - GB-1002 CN 250V 16Amp 2.5m Power Cord	AF584A
	HP C19 - CNS-690 TW 250V 16Amp 2.5m Power Cord	AF585A
	HP 240 VAC 4.5M Unterminated End NA Power Cord	E7806A
	NOTE: For additional power cable information, please visit: http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html.	

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
	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 L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
	HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A

Related Options

HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A
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 additional information: http://h18004.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
NOTE: Please see the QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/14110_div/14110_div.html (Worldwide)	
HP R5KVA and R7KVA 3U Extended Runtime Module	AF464A
HP Rack-mountable R8000/R12000 UPS	
HP R8000/3 8000kVA Three Phase NA 6U Rackmount Uninterruptible Power System	AF431A
HP R8000/3 8000kVA Three Phase INTL 6U Rackmount Uninterruptible Power System	AF432A
HP R12000/3 12000VA Three Phase NA 6U Rackmount Uninterruptible Power System	AF429A
HP R12000/3 12000VA Three Phase INTL 6U Rackmount Uninterruptible Power System	AF430A
NOTE: Please see the QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/12857_div/12857_div.html (Worldwide)	

HP Basic 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.

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

Related Options

	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	
	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)	
HP Rack Series	**HP Intelligent Series Rack**	
	HP 642 1075mm Pallet Intelligent Series Rack	BW903A
	HP 642 1075mm Shock Intelligent Series Rack	BW904A
	NOTE: HP BladeSystem c7000 Enclosure is not supported in a 14U rack	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: 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 Tape Backup	**NOTE:** For the complete range of tape drives, autoloaders, libraries and media see: http://www.hp.com/go/tape. For hardware and software compatibility of HP tape backup products see: http://www.hp.com/storage/SPOCK.	
	HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
	HP StoreEver LTO-6 Ultrium 6650 SAS Internal Tape Drive	EH963A
	HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive	EH964A
	HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
	HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A

Related Options

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
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://h18000.www1.hp.com/products/quickspecs/13731_div/13731_div.html (Worldwide)

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

Related Options

HP KVM Switches	
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 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
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/13475_div/13475_div.html (Worldwide)	
HP IP Console Switch G2 with Virtual Media & CAC	
HP 1x4 USB/PS2 KVM Console Switch	AF611A
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
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html (Worldwide)	
NOTE: Cat5e cables are required to connect Interface Adapters to Consoles Switches. Cat52 cables can be found at the following URL: http://www.hp.com/go/kvm	
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	
HP Airflow Optimization	
HP Rack Airflow Optimization Kit	AF090A
NOTE: The Airflow Optimization kit is designed to prevent hot and cold air from mixing thus optimizing the temperature at which the chilled air enters the racked servers.	
NOTE: When configuring racks through Factory Express, a Rack Optimization kit will automatically ship with the rack. This kit is recommended for all other rack configurations also.	
NOTE: For additional information regarding Rack Options, please see the following URL: www.racksolutions.com/hp.	

Related Options

HP Care Pack Services

NOTE: Some options, including Fibre Channel and InfiniBand switches for the HP c-Class BladeSystem, are not covered under the c7000 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 c7000 Enclosure Proactive Care Service	U3C33E
HP 3 year 6 hour Call To Repair 24x7 c7000 Enclosure Proactive Care Service	U3C36E
HP 3 year 4 hour 24x7 c7000 Enclosure with Insight Control Proactive Care Service	U3P10E
HP 3 year 6 hour Call To Repair 24x7 c7000 Enclosure with Insight Control Proactive Care Service	U3P13E

HP Proactive Care Personalized Support - Environmental Option

HP 3 year ISS ProactiveCare Personalized Support	U6W98E

Installation & Start-up Services

HP Startup BladeSystem c7000 Infrastructure Service	UE602E
HP Enhanced Network Installation and Startup Service for HP BladeSystem	UE603E
HP Hardware Install c-Class Enclosure and Server Blade Service	UE494E
HP Installation during Non Standard Hours c7000 Enclosure & Blade Service	UG870E

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

HP Flexible Care Pack Services for your Integrity BladeSystem Enclosure

NOTE: Some options, including Fibre Channel and InfiniBand switches for the HP c-Class BladeSystem, are not covered under the c7000 Platinum 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.

Mission Critical Services

Proactive 24 Service - Mission Critical proactive environment 24x7 4hr onsite HW support	HA111A3#6Q6
Critical Service - Mission Critical proactive environment 6-Hour Call-to-Repair onsite HW support	HA112A3#6Q6

Installation & Start-up Services

HP BladeSystem c7000 Infrastructure Installation and Startup Service for Blade Hardware and Insight Control Software	HA114A1#57A
HP Enhanced Network Installation and Startup Service for HP BladeSystem	HA124A1#56H

NOTE: Please contact your HP sales representative or HP authorized ServiceONE partner for additional flexible Care Pack information

Power Specifications

HP 2400 Watts Platinum Hot Plug Power Supply					
Part Number	588603-B21				
Input Voltage Range (Vrms)	200-240				
Frequency Range (Nominal) (Hz)	50 / 60				
Nominal Input Voltage (Vrms)	**200**	**208**	**220**	**230**	**240**
Maximum Rated Output Wattage	2450	2450	2450	2450	2450
Nominal Input Current (A rms)	13.9	13.4	12.6	12.0	11.4
Maximum Rated Input Wattage Rating (Watts)	2692	2692	2678	2678	2663
Maximum Rated VA (Volt-Amp)	2778	2778	2762	2762	2747
Efficiency (%) at Max. Rated Output Wattage	91	91	91.5	91.5	92
Power Factor	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.97	1.01	1.06	1.11	1.16
Maximum Inrush Current (A peak)	100	100	100	100	100
Maximum Inrush Current duration (mS)	10	10	10	10	10
Maximum British Thermal Unit Rating (BTU-Hr)	9186	9186	9136	9136	9086

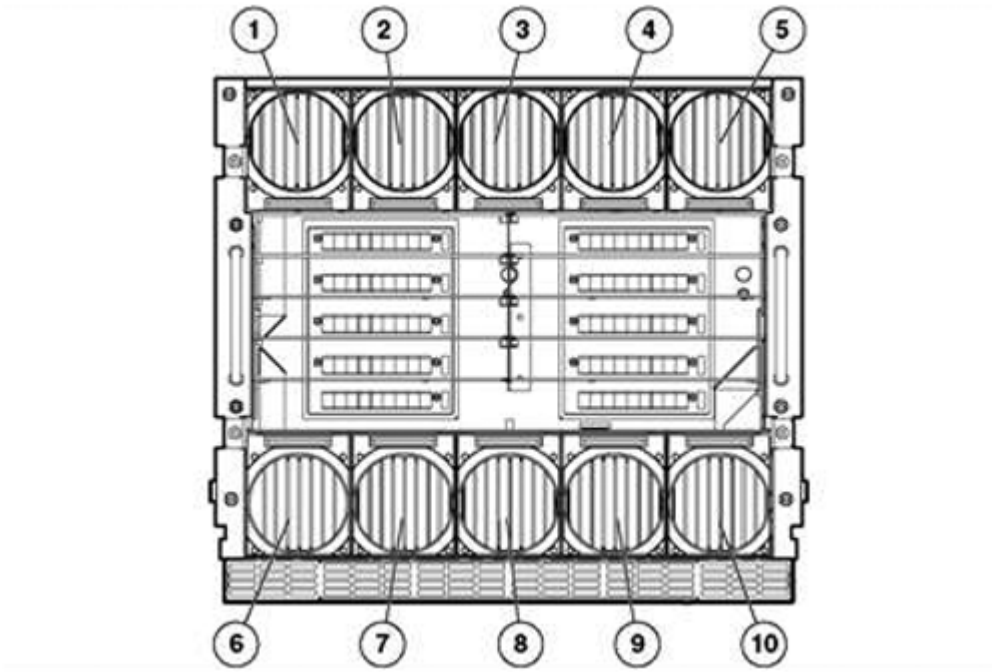
HP 2650 Watts Platinum Hot Plug Power Supply					
Part Number	733459-B21				
Input Voltage Range (Vrms)	200-240				
Frequency Range (Nominal) (Hz)	50 / 60				
Nominal Input Voltage (Vrms)	**200**	**208**	**220**	**230**	**240**
Maximum Rated Output Wattage	2650	2650	2650	2650	2650
Nominal Input Current (A rms)	14.5	13.9	13.1	12.5	12.0
Maximum Rated Input Wattage Rating (Watts)	2898	2901	2904	2887	2884
Maximum Rated VA (Volt-Amp)	2896	2888	2887	2882	2878
Efficiency (%) at Max. Rated Output Wattage	91.4	91.3	91.2	91.8	91.9
Power Factor	0.98				
Leakage Current (mA)	0.97	1.01	1.06	1.11	1.16
Maximum Inrush Current (A peak)	100				
Maximum Inrush Current duration (mS)	10				
Maximum British Thermal Unit Rating (BTU-Hr)	9888	9899	9910	9850	9840

Power Specifications

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 and Fan Population Guidelines

Fan bay numbering



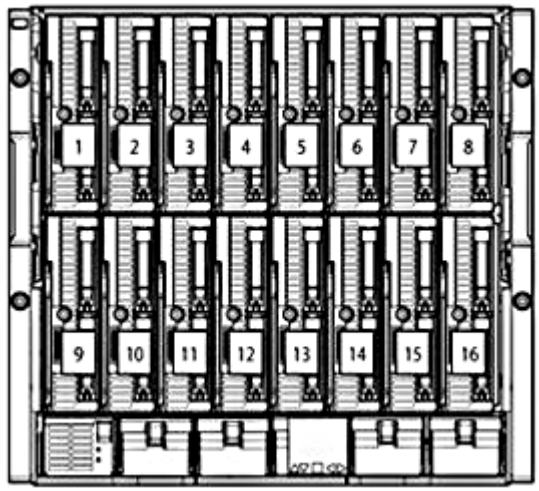
Fans must be placed in the following bays

Number of Fans	Fan Bays Used
4	4, 5, 9, 10
6	3, 4, 5, 8, 9, 10
8	1, 2, 4, 5, 6, 7, 9, 10
10	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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 systems to power on.

Server Blade, Expansion Blade, and Fan Population Guidelines

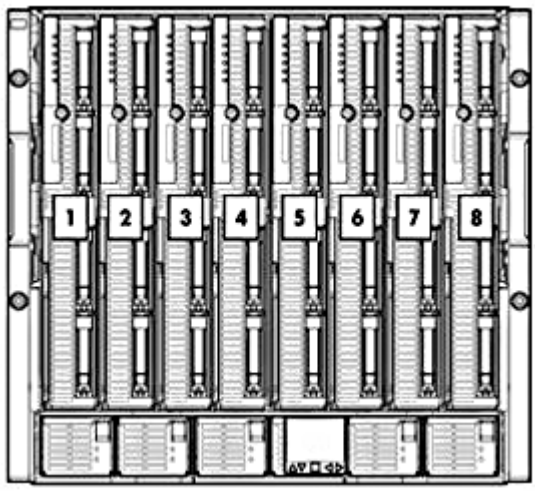
Half-height server blade bay numbering



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
9. Device Bay 9
10. Device Bay 10
11. Device Bay 11
12. Device Bay 12
13. Device Bay 13
14. Device Bay 14
15. Device Bay 15
16. Device Bay 16

NOTE: Half-height servers should be populated from top and bottom from left to right from the front of the enclosure. So the first two half-height servers would be placed in bays 1 & 9 the second two half-height servers would be placed in bays 2 & 10 and so on until the enclosure is full.

Full-height server blade bay numbering



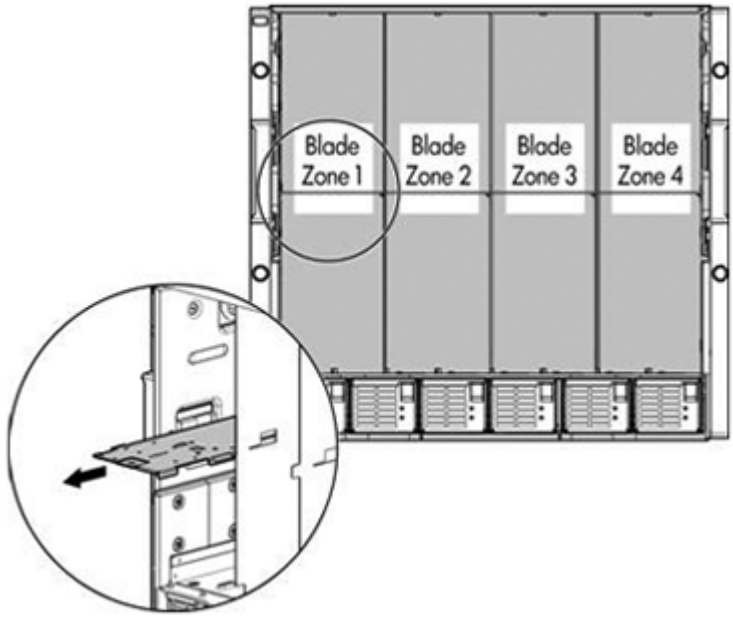
1. Device Bay 1
2. Device Bay 2
3. Device Bay 3
5. Device Bay 5
6. Device Bay 6
7. Device Bay 7

Server Blade, Expansion Blade, and Fan Population Guidelines

4. Device Bay 4
8. Device Bay 8

NOTE: Full-height servers should be populated from left to right.

Full-height and half-height server blade mixed configurations



The c7000 enclosure is divided into 4 zones by the vertical support metalwork. Within each zone a removable divider is used to support half height devices. To install a full-height blade in any zone this divider must be removed. As a consequence a zone can only contain either full-height server blades or half-height server blades.

NOTE: Expansion blades can be installed in the same zone as both full-height and half-height blades. For more information, please see the "Expansion blades" later in this document.

Expansion blades

Expansion blades consist of storage blades, tape blades, and the PCI Expansion Blade. Up to 8 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 adjacent to 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.

Server Blade, Expansion Blade, and Fan Population Guidelines

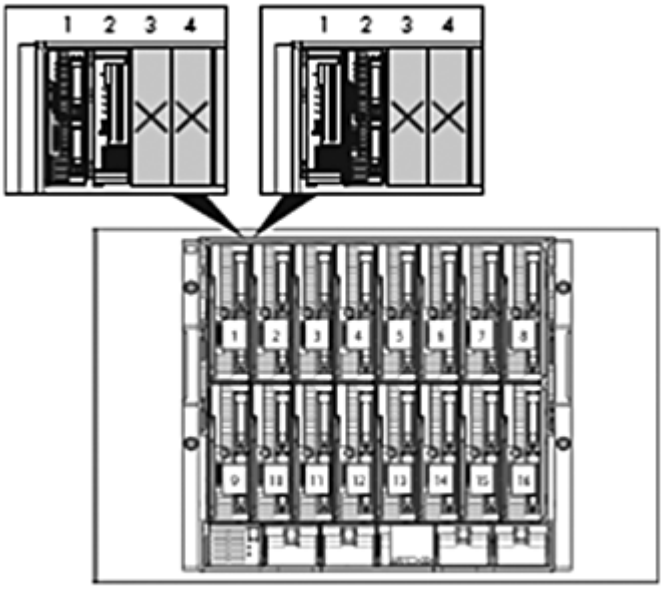


Figure 1 Installing an expansion blade adjacent to a half-height server blade.

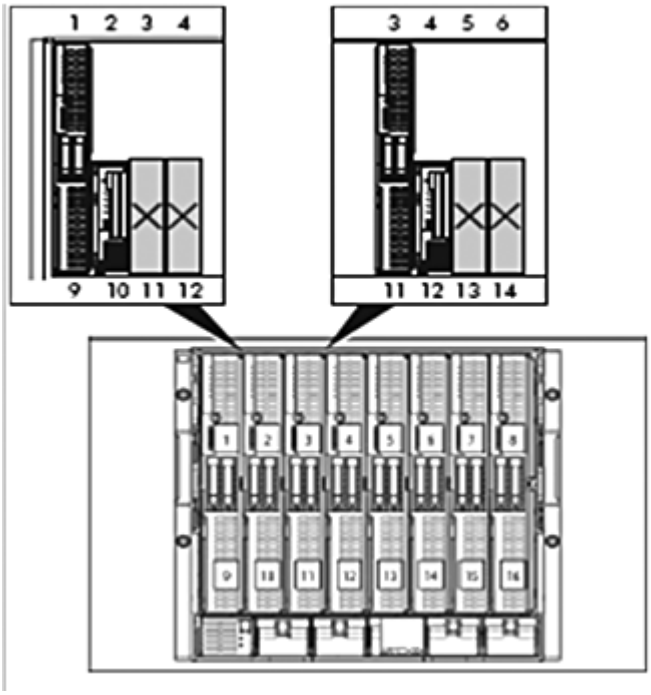


Figure 2 Installing a single expansion blade adjacent to a full-height server blade.

Expansion blade population best practices for half-height server blades

1. One half-height partner server blade supports one expansion blade (Figure 1).
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, 7 & 8, 9 & 10, 11 & 12, 13 & 14, 15 & 16.
3. If the partner server blade is installed in an odd-numbered bay, the expansion blade is installed in the adjacent even-numbered bay to the right.
4. If the partner server blade is installed in an even-numbered bay, the expansion blade is installed in the adjacent odd-numbered bay to the left.
5. Each c7000 zone contains a removable divider 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. One full-height partner server blade supports one or two expansion blades. Figure 2 shows installation of one expansion blade.
2. Identify the partner server blade to be installed with the first expansion blade. The two blades always occupy a pair of slots, as follows: 9 & 10, 11 & 12, 13 & 14, 15 & 16.
3. The partner server blade is installed in an odd-numbered bay. The first expansion blade is installed on the lower row of the enclosure in an even-numbered bay (slots 10, 12, 14 or 16) adjacent to the partner server blade.
4. If only a single expansion blade is installed:
   a. A half-height server blade may be installed in the empty bay directly above the expansion blade; this server blade cannot be partnered with the expansion blade. A coupler bracket is installed on the expansion blade. A coupler bracket is not installed on the server blade. A coupler bracket is included with each expansion blade.
   b. If no device is desired in the empty bay above the expansion blade, a device bay blank is installed.
   c. The upper half-height server blade or device bay blank must be removed before removing the lower expansion blade.
5. If a second expansion blade is installed:
   a. It is always located directly above the first installed expansion blade. A coupler bracket is installed on the lower expansion blade. A coupler bracket is not installed on the upper expansion blade. A coupler bracket is included with each expansion

blade.

b. Two storage blades, two tape blades, two PCI Expansion Blades, or a mixture of any two. For a mixed configuration that contains a storage blade, the storage blade is installed on the bottom bay and the tape blade or PCI Expansion Blade is installed on the top bay.

c. The upper expansion blade must be removed before removing the lower expansion blade.

6. When partnering an expansion blade with a ProLiant BL620c G7 Server Blade, an HP PCI Express Mezzanine Pass-Thru Card for BladeSystem c-Class (431643-B21) is required. This card is installed in the mezzanine 3 connector in the server blade for a lower bay expansion blade installation and a second card in installed in mezzanine 2 connector if a second expansion blade is required.
7. The HP ProLiant BL680c G7 Server Blade is a full-height, double-wide device. It does not support expansion blades.

Technical Specifications

HP BladeSystem c7000 Server Blade Enclosure	**Dimensions**	Height	17.4 in (442 mm)
		Width	17.6 in (447.04 mm)
		Depth	32 in (813 mm)
	Shipping Dimensions	Height	29.88 in (759 mm)
		Width	23.88 in (607 mm)
		Depth	39.88 in (1013 mm)
	Single Phase Enclosure Weight	Unboxed	192 lb (87 kg)
		Shipping	235 lb (106.6 kg)
	Three -Phase Enclosure NA/JPN Weight	Unboxed	222 lb (100.7 kg)
		Shipping	265 lb (120.2 kg)
	Three-Phase Enclosure International Weight	Unboxed	222 lb (100.7 kg)
		Shipping	265 lb (120.2 kg)
	DC Input Enclosure Weight	Unboxed	151 lb (68.5 kg)
		Shipping	194 lb (88 kg)
	Max Enclosure Weight (approximate)	Unboxed	450 lb (204 kg)
		Shipping	493 lb (223.6 kg)
	Temperature Range	Operating	50° to 95° F (10° to 35° C)
		Non-Operating	-22° to 140° F (-30° to 60° C)
	Relative Humidity	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.

NOTE: Operating temperature has an altitude derating of 1.8° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Upper operating limit is 10,000 ft (3,048 m) or 70Kpa/10.1 psia. Upper non-operating limit is 30,000 ft (9,144 m) or 30.3 KPa/4.4 psia. Storage maximum humidity of 95% is based on a maximum temperature of 113° F (45° C). Altitude maximum for storage is 70 KPa.

Power	**Input Requirements - Single Phase Model**	Rated input frequency	50 to 60 Hz	
		2400W PSU	Rated input voltage	200 to 240 VAC
			Rated input current per power supply	13.9 A at 200 VAC 13.3 A at 208 VAC 12.6 A at 220 VAC
			Rated input power per power supply	2780 VA
		Rated input Frequency	50 to 60 Hz	
		2650W PSU	Rated input voltage	200 to 240 VAC
			Rated input current per power supply	14.4 A at 200 VAC 13.8 A at 208 VAC 13.1 A at 220 VAC

		Rated input power per power supply	2880 VA
Input Requirements - Three Phase NA/JPN Model	Rated input voltage	200 to 208 VAC Line to Line 3-Phase Delta	
	Rated input frequency	50 to 60 Hz	
	2250W PSU	Max input current per line cord	22.6A at 200 VAC 21.8A at 208 VAC
		Max input power per line cord	7836VA Max
	2400W PSU	Max input current per line cord	24A at 200 VAC 23.1A at 208 VAC
		Max input power per line cord	8340 VA Max
Input Requirements - Three Phase International Model	Rated input voltage	346 VAC to 415 VAC Line to Line 200 VAC to 240 VAC Line to Neutral 3-Phase WYE	
	Rated input frequency	50 to 60 Hz	
	2250W PSU	Max input current per line cord	11.9 A at 220 VAC 10.9 A at 240VAC
		Max input power per line cord	7836 VA Max
	2400W PSU	Max input current per line cord	12.6 A at 220 VAC 11.5 A at 240VAC
		Max input power per line cord	8340 VA Max
Input Requirements DC Power	Rated Input Voltage	36 to -72 VDC	
	Max Input Current per line cord	75A	
	Max Input Power per line Cord	2700W	
Power Cords	Single Phase	IEC-320 C19-C20 1.22m (6 ft)	
	3-Phase NA/JPN	2 x NEMA L15-30p 3.048m (10 ft)	
	3-Phase International	2 x IEC-309 200/346 V - 240/415 V, 5-Pin, 6h 16A 3.048m (10 ft)	
	-48V DC Power	Terminal lug: 45DG 4AWG 1/4 2H Two-hole lug 45 degree bend 0.25in. (6.4mm) stud hole size 0.63in. (16mm) hole spacing	
Output Specifications (per power supply)	HP 2400W High Efficiency Hot-Plug Power Supply	200 - 240 VAC 2400 W 92% Efficiency	
	HP 2250W -48V DC Hot-Plug Power Supply	2250W	
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	
		LWAd	7.1 Bels
		LpAm	54 dBA
		Operating	
		LWAd	7.2 Bels
		LpAm	54 dBA
Option Kits	**Power Supply Option Shipping Dimensions**	Height	8.75 in (223 mm)
		Width	8.63 in (219 mm)
		Depth	35.13 in (892 mm)
		Weight	8.5 lbs (3.85 kg)
	Fan Option Shipping Dimensions	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)
	BladeSystem Onboard Administrator Option Shipping Dimensions	Height	2.50 in (63.5 mm)
		Width	9.88 in (251 mm)
		Depth	13.50 in (343 mm)
		Weight	4.0 lbs (1.8 kg)
Environmental-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

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