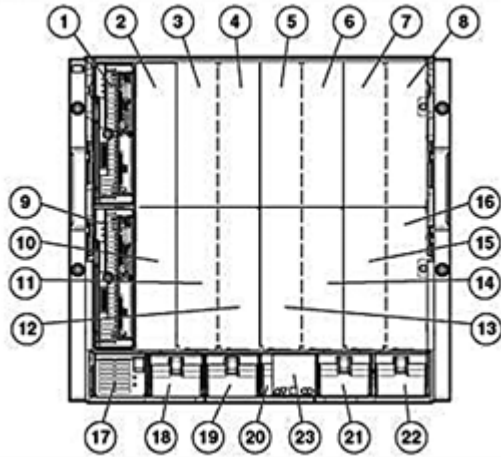
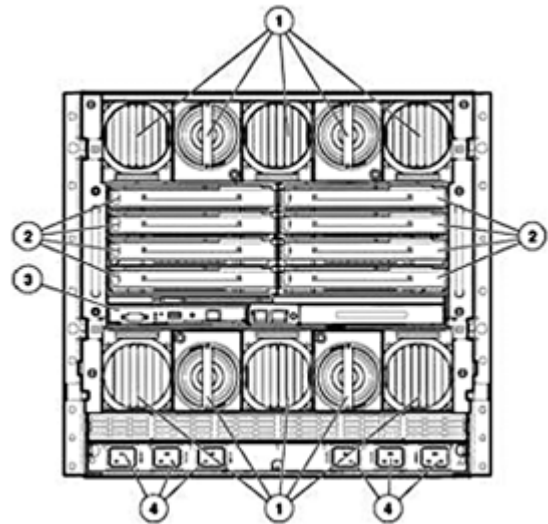


Overview



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

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 Insight Control management software. For information on these options please visit:

<http://www.hp.com/go/bladeSystem>.

HP BladeSystem c-Class Overview

HP BladeSystem c-Class c7000 Enclosure

A BladeSystem c7000 enclosure holds up to 16 server 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_na/12790_na.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/bladessystem>.

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_na/14507_na.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_na/12729_na.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).

HP BladeSystem c-Class Overview

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 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 ownership 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

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

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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 personalized IT support anywhere, anytime.

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

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

Parts and Materials

HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction.

For more information

To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit:

www.hp.com/services/bladessystem.

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 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: c7000 Platinum enclosures (PNs 681840-B21 and 681842-B21) 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 WW 250W C19 - C20 2.0m Jumper Cord per power supply.

Smart Buys

Smart Buy Models

HP c7000 2xVC-10D 6P10F 16xIC Encl/S-Buy	714683-S21
Includes: c7000 Platinum enclosure with 2 Virtual Connect Flex-10/10D modules, 2 On Board Administrator modules, 6 Platinum Power supplies, Single Phase Intelligent Power Module, 10 fans and 16 Insight Control Licenses	
HP c7000 2xVCCF 6P10F 16xIC Encl/S-Buy	714684-S21
Includes: c7000 Platinum enclosure with 2 Virtual Connect FlexFabric modules, 2 On Board Administrator modules, 6 Platinum Power supplies, Single Phase Intelligent Power Module, 10 fans and 16 Insight Control Licenses	

Configuration Information Factory Integrated Models

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

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

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

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

NOTE: HP ProLiant 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	677595-B21
	NOTE: This option enables HP Power Discovery Services; with the correct power supplies (see power supplies below that match/enable HP Power Discover Services).	
	HP BLc7000 1 PH FIO Power Module Option	413379-B21
	NOTE: This option disables HP Power Discovery Services.	
	HP BLc7000 3 PH Intl FIO Power Modue Option	413381-B21
NOTE: This option disables HP Power Discovery Services.		
	HP BLc7000 3 PH NA/JP FIO Power Module Option	413380-B21
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.		
	HP BLc7000 -48V DC Power Input Module	AH331A
NOTE: This option disables HP Power Discovery Services.		

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

733460-B21

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.

HP 2650W Platinum Hot Plug Power Supply Kit

733459-B21

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.

HP 6X 2400W Platinum Hot Plug Factory Integrated Power Supply Kit

517521-B22

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.

HP 2400W Platinum Hot Plug Power Supply Kit

588603-B21

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.

HP 6X 2400W Gold Hot Plug Factory Integrated Power Supply Kit

517521-B21

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.

HP 2400W Gold Hot Plug Power Supply Kit

499243-B21

NOTE: This option disables HP Power Discovery Services.

NOTE: Includes one WW 250W C19 - C20 2.0m Jumper Cord.

Configuration Information Factory Integrated Models

	HP 2250W -48VDC Hot Plug Power Supply Kit	AH332A
	NOTE: This option disables HP Power Discovery Services.	
	NOTE: Only compatible with -48V DC Power Input Module.	
HP Cooling Options	c-Class Active Cool Fan (Up to 6)	
	HP BLc 6X Active Cool 200 Factory Integrated Fan Option	517520-B21
	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.	
	HP BLc7000 Enclosure HP Single Active Cool Fan Option Kit	412140-B21
	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.	

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

HP Insight Software	Enclosure Options	
	HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 8 Svr FIO Electronic License	C6N32ABE
	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.	

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 .	

Configuration Information Factory Integrated Models

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

Configuration Information Factory Integrated Models

NOTE: Please see the [6Gb SAS Switch QuickSpecs](http://h18000.www1.hp.com/products/quickspecs/13960_na/13960_na.html) for Technical Specifications and additional information at:
http://h18000.www1.hp.com/products/quickspecs/13960_na/13960_na.html
 (Worldwide)

HP BladeSystem	HP Virtual Connect 8Gb 24-port Fibre Channel Module for c-Class BladeSystem	466482-B21
c-Class SAN Interconnects	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	C8546A
	Brocade 16Gb/16 SAN Switch for BladeSystem c-Class	C8545A
	Brocade 16Gb/28 SAN Switch Power Pack+ for BladeSystem c-Class	C8547A
	HP B-series 8/12c SAN Switch for BladeSystem c-Class 12-port Upgrade RTU	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 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	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_na/12586_na.html (Worldwide)	

Configuration Information Factory Integrated Models

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 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

NOTE: Please see the [Monitored Power PDU QuickSpecs for Technical Specifications and additional information:](#)

http://h18000.www1.hp.com/products/quickspecs/12118_na/12118_na.html

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 8.6kVA 24A Three Phase NA/JP Modular Power Distribution Unit AF512A

HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit 252663-D75

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_na/11041_na.html

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 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

NOTE: Please see the [iPDU QuickSpecs for Technical Specifications and additional information:](#)

http://h18000.www1.hp.com/products/quickspecs/13650_na/13650_na.html

Step 7: Select optional Power Cords

Configuration Information Factory Integrated Models

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
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	<p>HP BLc7000 Onboard Administrator with KVM Option 456204-B21</p> <p>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).</p> <p>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.</p> <p>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.</p>
	<p>HP BLc7000 10000 Series Rack Shipping Bracket Option 433718-B21</p> <p>NOTE: The shipping bracket is required when shipping a c7000 enclosure when installed in a rack. It is not required for normal operation.</p>
	<p>HP BLc7000 Miscellaneous Blanks Option Kit 412148-B21</p> <p>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.</p> <p>NOTE: This kit should only be ordered to replace lost or damaged blanks.</p>
	<p>HP BLc7000 Server Blank w/Coupler Option 412150-B21</p> <p>NOTE: This is option contains one half-height device blank and a coupler that can be used for the c3000 and c7000 enclosures.</p> <p>NOTE: Order quantity of one 412150-B21 for filling a half-height bay; the coupler is not used.</p> <p>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.</p> <p>NOTE: This kit should only be ordered to replace lost or damaged blanks.</p>
HP Power Supplies	<p>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.</p> <p>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.</p> <p>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."</p>

Related Options

HP 2650W Platinum Hot Plug Power Supply Kit	733459-B21
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.	
HP 2400W Platinum Hot Plug Power Supply Kit	588603-B21
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.	
HP 2400W Gold Hot Plug Power Supply Kit	499243-B21
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.	
HP 2250W -48VDC Hot Plug Power Supply Kit	AH332A
NOTE: This option disables HP Power Discovery Services.	
NOTE: Only compatible with -48V DC Power Input Module.	

HP Cooling Options

HP c-Class Active Cool Fan	
HP BLc7000 Enclosure HP Single Active Cool Fan Option Kit	412140-B21
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.	

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	591973-B21
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_na/12860_na.html	
HP Virtual Connect FlexFabric 10/24 Enterprise Edition BLc7000 Option	605865-B21
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.	
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
HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem	538113-B21

Related Options

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	C8546A
Brocade 16Gb/16 SAN Switch for BladeSystem c-Class	C8545A
Brocade 16Gb/28 SAN Switch Power Pack+ for BladeSystem c-Class	C8547A
Brocade 4/12 SAN Switch Upgrade RTU for HP BladeSystem c-Class	AE373A
HP MDS 8/12c Fabric Switch 12-port Upgrade LTU	TA804A

NOTE: Licensed per switch.

HP MDS Fabric Manager Server for BladeSystem c-Class LTU	TC316A
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NOTE: Licensed per switch.

HP MDS Enterprise Package for BladeSystem c-Class LTU	TC317A
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NOTE: Licensed per switch.

HP MDS Fabric Manager Server Enterprise Package for BladeSystem c-Class LTU	TC318A
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NOTE: Licensed per switch.

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_na/13960_na.html

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	489184-B21
NOTE: Quad Data Rate (QDR) InfiniBand Switch Modules are only supported in the RoHS 6 of 6 compliant enclosures and G6 Blades.	
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

Related Options

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

http://h18000.www1.hp.com/products/quickspecs/12586_na/12586_na.html

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

BD883A

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

HP Insight Management Media Kit

C6N31A

NOTE: HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.

NOTE: Licenses ship without media. The Insight 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_na/12631_na.html

Related Options

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	<p>HP Virtual Connect Enterprise Manager including 1yr 24x7 Support Single c7000 Enclosure Lic</p> <p>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.</p> <p>NOTE: For additional license kits, please visit: http://h18000.www1.hp.com/products/quickspecs/12860_na/12860_na.html</p>	459864-B21
HP c-Class Storage Blades	<p>HP D2200sb PCIe Storage Blade AP880A</p> <p>NOTE: Please see the HP D2200sb Storage Blade QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13714_na/13714_na.html</p> <p>HP D2220sb PCIe and StoreVirtual VSA Bundle QW914A</p> <p>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.</p> <p>NOTE: Includes 3yr NBD Parts-Only Warranty Service for D2220sb hardware.</p> <p>NOTE: Includes 3yr 9x5 remote technical support for HP StoreVirtual VSA software and free updates.</p> <p>NOTE: HP StoreVirtual VSA is supported on VMware ESX/ESXi & Microsoft Hyper-V.</p> <p>HP D2220sb PCIe w/(12) 900 GB 6G SAS HDD Bundle QW915A</p> <p>NOTE: Includes 3yr NBD Parts-Only Warranty Service for D2220sb hardware</p> <p>HP D2220sb Build-to-order Storage Blade QW917A</p> <p>NOTE: Includes 3yr NBD Parts-Only Warranty Service</p> <p>HP D2220sb Configure-to-order Storage Blade QW918A</p> <p>NOTE: Includes 3yr NBD Parts-Only Warranty Service</p> <p>NOTE: The D2220sb requires a c7000 Enclosure configuration with 10 fans.</p> <p>NOTE: Please see the HP D2220sb Storage Blade QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14507_na/14507_na.html.</p>	
	<p>HP BL c-Class PCI Express Mezzanine Pass Thru Option Kit 431643-B21</p> <p>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.</p>	
	HP StoreEasy 3830 Gateway Storage Blade	B7E01A

Related Options

HP Expansion Blades	HP BLc PCI Expansion Blade	448018-B21
	<p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12753_na/12753_na.html</p>	
	HP BL c-Class PCI Express Mezzanine Pass Thru Option Kit	431643-B21
	<p>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.</p>	
HP Ultrium Tape Blades	HP StoreEver LTO-5 Ultrium SB3000c Tape Blade	BS580B
	HP StoreEver LTO-4 Ultrium SB1760c Tape Blade	AQ697B
	<p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12729_na/12729_na.html</p>	
	HP BL c-Class PCI Express Mezzanine Pass Thru Option Kit	431643-B21
	<p>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.</p>	
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 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 - IEC-309 DK/SE/AR 250V 16Amp 3.6m Power Cord	AF581A
	HP 240 VAC 4.5M Unterminated End Power Cord	E7806A
	<p>NOTE: For additional power cable information, please visit: http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html</p>	

Related Options

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

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14059_na/14059_na.html

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

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14058_na/14058_na.html

R5000 Uninterruptible Power System (UPS)

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_na/14109_na.html

R7000 Uninterruptible Power System (UPS)

HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System

AF462A

NOTE: Please see the QuickSpecs for additional information:

http://h18004.www1.hp.com/products/quickspecs/14110_na/14110_na.html

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 R12000/3 12000VA Three Phase NA 6U Rackmount Uninterruptible Power System

AF429A

NOTE: Please see the QuickSpecs for additional information:

http://h18004.www1.hp.com/products/quickspecs/12857_na/12857_na.html

Related Options

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
HP 11kVA 400 Volt Three Phase 42 Outlet NA Basic Power Distribution Unit	H5M67A
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_na/14557_na.html

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_na/14223_na.html

NOTE: For additional information regarding rack cabinets, please see the following URL:
<http://www.hp.com/go/rackandpower>

Related Options

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	COL99A
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

HP Rack Options

Keyboards and Monitors

HP USB BFR with PVC Free Keyboard/Mouse Kit	631341-B21
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13972_na/13972_na.html

HP TFT7600 G2 KVM Console Rackmount Keyboard Monitor	AZ870A
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HP TFT7600 G2 KVM Console Rackmount Keyboard TAA Monitor	AZ885A
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13731_na/13731_na.html

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

HP KVM Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
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HP Server Console 0x2x16 Port Analog Switch	AF617A
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HP TAA 0x2x16xKVM Server Console G2 Switch	AF626A
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/11834_na/11834_na.html

HP Server Console Switch G2 with Virtual Media & CAC

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
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HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
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HP KVM CAT5 1-pack USB Interface Adapter	336047-B21
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13475_na/13475_na.html

HP IP Console Switch G2 with Virtual Media & CAC

HP 1x4 USB/PS2 KVM Console Switch	AF611A
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HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
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HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
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HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A
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Related Options

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

http://h18000.www1.hp.com/products/quickspecs/13474_na/13474_na.html

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.

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.

Related Options

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

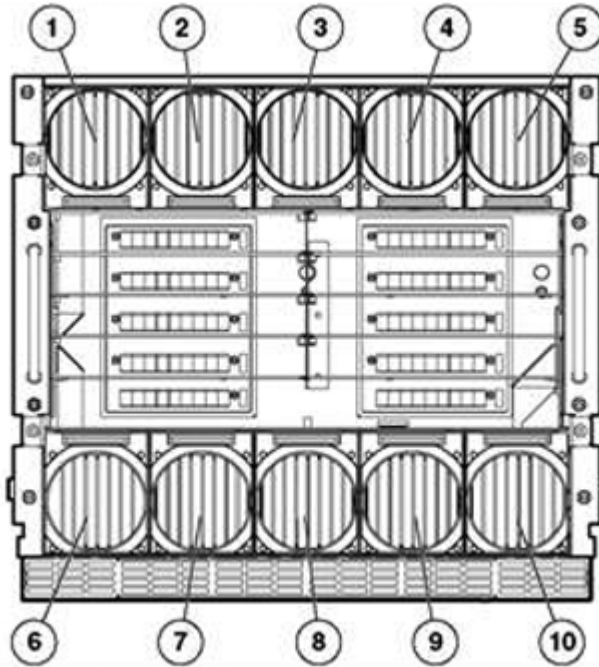
Power Specifications

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, Expansion Blade, and Fan Population Guidelines

Server Blade and Fan Population Guidelines

Fan bay numbering



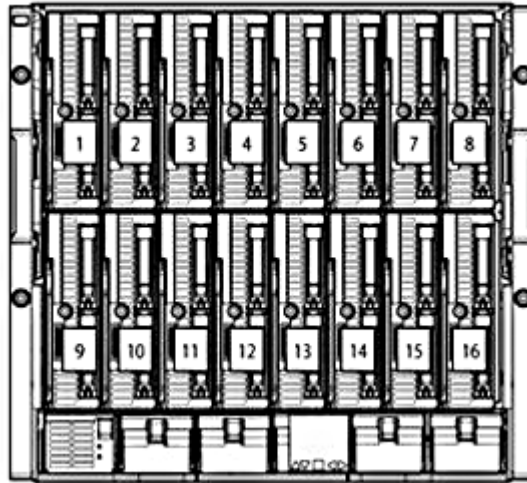
Fans must be placed in the following bays

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

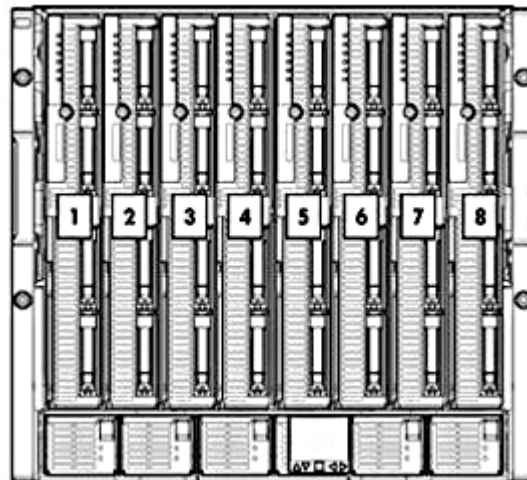


1. Device Bay 1
2. Device Bay 2
3. Device Bay 3
4. Device Bay 4
5. Device Bay 5
6. Device Bay 6
7. Device Bay 7
8. Device Bay 8

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

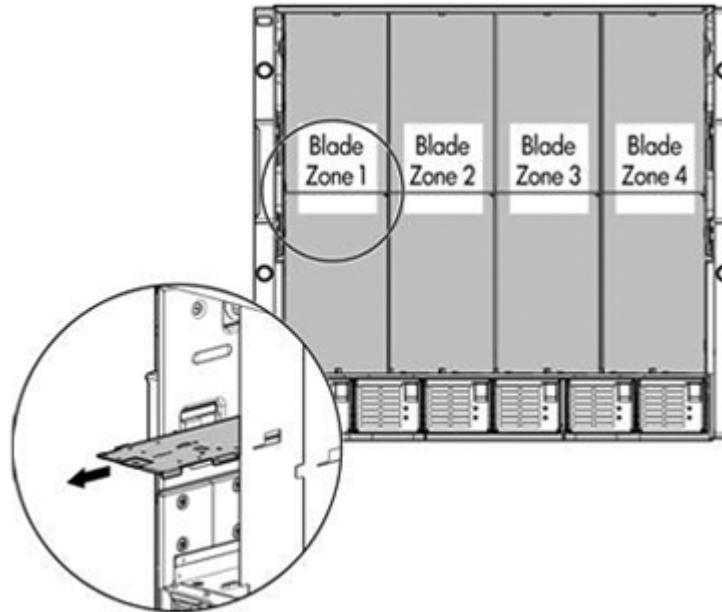
Server Blade, Expansion Blade, and Fan Population Guidelines

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

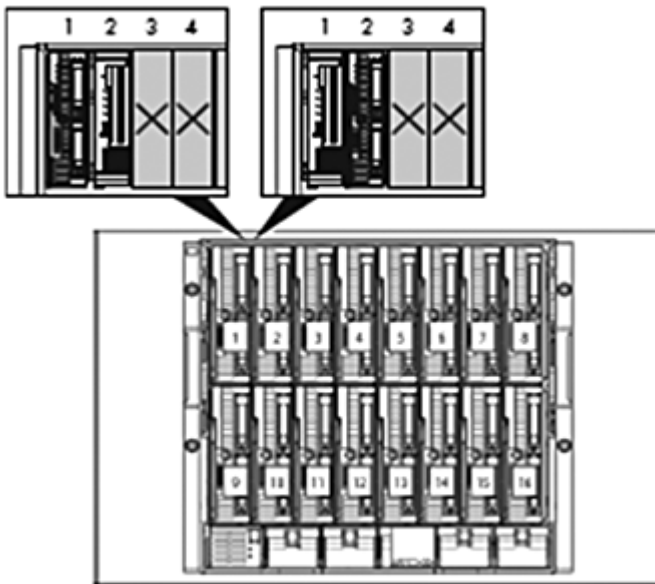


Figure 1 Installing an expansion blade adjacent to a half-height server blade.

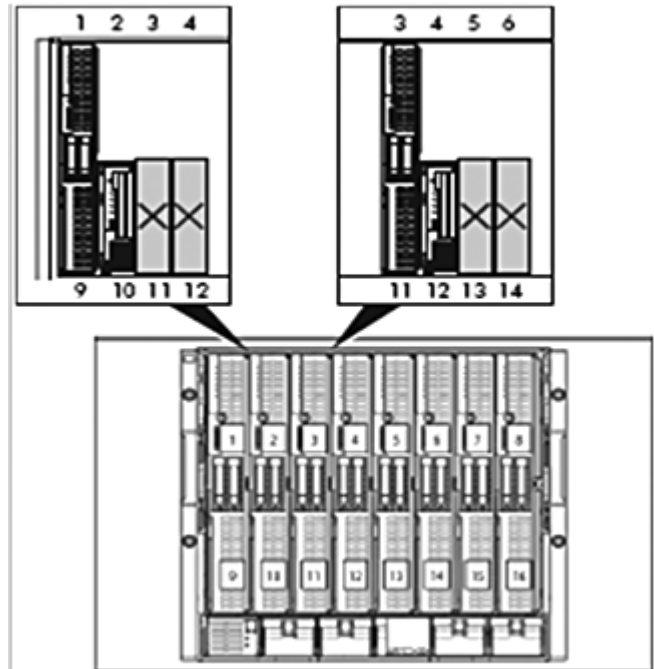


Figure 2 Installing a single expansion blade adjacent to a full-height server blade.

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 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

Server Blade, Expansion Blade, and Fan Population Guidelines

- 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 is 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 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	13.9 A at 200 VAC
			per power supply	13.3 A at 208 VAC 12.6 A at 220 VAC
		Rated input power	2780 VA	
	per power supply			
	2650W PSU	Rated input Frequency	50 to 60 Hz	
		Rated input voltage	200 to 240 VAC	
		Rated input current	14.4 A at 200 VAC	
		per power supply	13.8 A at 208 VAC 13.1 A at 220 VAC	
Rated input power per		2880 VA		
power supply				
Input Requirements -	Rated input voltage	200 to 208 VAC Line to Line		

Technical Specifications

Three Phase NA/JPN Model	Rated input frequency 2250W PSU	3-Phase Delta	
		50 to 60 Hz	
		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
Input Requirements - Three Phase International Model	Rated input voltage Rated input frequency 2250W PSU	346 VAC to 415 VAC Line to Line 200 VAC to 240 VAC Line to Neutral 3-Phase WYE	
		50 to 60 Hz	
		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
Input Requirements DC Power	Rated Input Voltage Max Input Current per line cord Max Input Power per line Cord	36 to -72 VDC	
		75A	
		2700W	
Power Cords	Single Phase	IEC-320 C19-C20 1.22m (6 ft)	
	3-Phase	2 x NEMA L15-30p 3.048m (10 ft)	
	-48V DC Power	Terminal lug: 45DG 4AWG 1/4 2H	
Output Specifications (per power supply)	HP 2400W High Efficiency Hot-Plug Power Supply	Two-hole lug 45 degree bend 0.25in. (6.4mm) stud hole size 0.63in. (16mm) hole spacing	
	HP 2250W -48V DC Hot-Plug Power Supply	200 - 240 VAC 2400 W 92% Efficiency 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	

Technical Specifications

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)

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