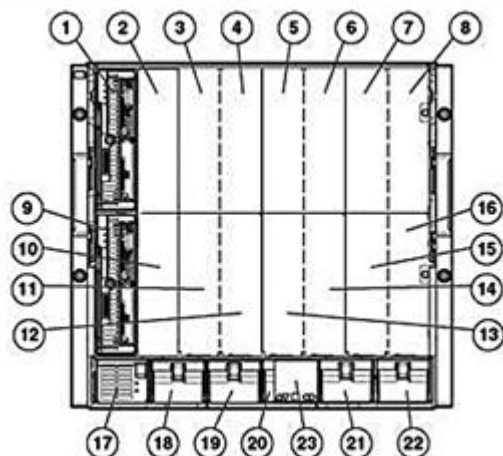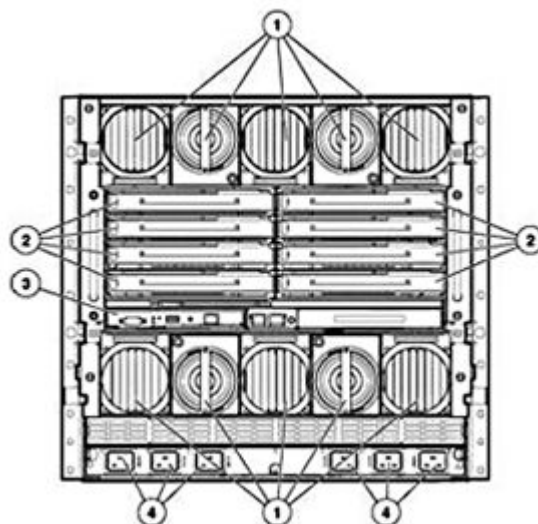## Overview

HP BladeSystem c7000 Platinum 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 Platinum 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

- Increased mid-plane bandwidth
- Intelligent Infrastructure
  - 2400W Platinum Hot Plug Power Supply (80 Plus certified)
  - Single Phase Intelligent Power Module
  - Location Discovery Services
- Support for HP Insight Control 7.2 and higher releases

At A Glance

This document covers the HP BladeSystem Platinum c7000 Enclosure. For more information on HP ProLiant Server Blades and HP BladeSystem c-Class Interconnect Components please see the following QuickSpecs:
HP BladeSystem c-Class Server Blades:
http://h18000.www1.hp.com/products/quickspecs/division/12534.html
HP BladeSystem c3000 Platinum Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html

HP BladeSystem solutions start with a BladeSystem c7000 Platinum Enclosure, optional 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, and Insight Control management software. Reference the QuickSpecs listed above.

- **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.

For additional information please visit: http://www.hp.com/go/bladesystem

HP BladeSystem c-Class Overview

HP BladeSystem c-Class c7000 Enclosure

A BladeSystem c7000 Platinum enclosure holds up to 16 server and/or storage blades plus redundant network and storage switches. 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 Platinum enclosure is built with the following functions:

- Up to 16 half-height and/or up to 8 full-height server blades and/or storage blades per enclosure.
- Up to 4 different 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, 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 Platinum 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 Platinum 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 more information please see: http://h18000.www1.hp.com/products/quickspecs/division/12534.html

HP D2200sb Storage Blade	The D2200sb Storage Blade delivers direct attached storage for c-Class servers, with support for up to twelve hot plug small form factor (SFF) SAS hard disk drives. 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 D2200sb Storage Blade features an onboard Smart Array P410i controller with 1 GB flash-backed write cache, for increased performance and data protection.
	Two ways to create shared storage with the D2200sb
	Use HP StoreVirtual VSA software to turn the D2200sb into an iSCSI SAN for use by all severs 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 D2200sb. HP StoreVirtual VSA turns the D2200sb 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 D2200sb Storage Blades and HP VSA licenses. A cost effective bundle of the D2200sb Storage Blade and a HP 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 X1800sb Network Storage Blade is a flexible storage server solution for BladeSystem environments. Combine the X1800sb with the D2200sb Storage Blade to enable file serving and iSCSI shared storage inside the BladeSystem enclosure.
	For more information, please visit: http://h18000.www1.hp.com/products/quickspecs/13714_div/13714_div.html

HP BladeSystem c-Class Overview

HP Ultrium Tape Blades	The HP SB1760c is an LTO-4 Ultrium, 1.6 TB capacity on a single cartridge (2:1 compression), 576 GB/hr performance (2:1 compression), 128 MB buffer size, WORM capability, AES 256-bit hardware data encryption capability.

Tape blades are ideal for HP BladeSystem c-Class customers who need a data protection solution but are not connected into a Storage Area Network (SAN). They provide direct attach data protection for the adjacent server and network backup protection for all other data within the enclosure. The HP tape blades are the industry's first bladed tape drives and are developed exclusively for the BladeSystem c-Class enclosures.

For more information, please visit:
http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html |
| **HP Network Storage Servers** | HP X1800sb Network Storage Blade
HP X1800sb Network Storage Blade is a flexible storage server solution for BladeSystem environments. Combine the X1800sb with the D2200sb Storage Blade to enable file serving and iSCSI shared storage inside the BladeSystem enclosure. The flexibility of the X1800sb extends to external storage as well. The X1800sb can also be used as a low cost SAN gateway to provide consolidated file-serving access to FC, SAS, or iSCSI SANs.
NOTE: See the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12786_div/12786_div.html

HP X3800sb Network Storage Gateway
The X3800sb Network Storage Gateway Blade is used to access FC, SAS, or iSCSI SAN storage, translating file data from the server into blocks for storage to provide consolidated file, print, and management hosting services in a cluster-able package.
Built on the HP ProLiant BL460c Server Blade, the HP X3800sb Network Storage Gateway Blade is a ready to deploy SAN gateway solution, with Microsoft Storage Server 2008, Enterprise x64 Edition pre-installed. The HP Rapid Start-up Wizard accelerates new deployments by walking you through basic system settings step-by-step. The X3800sb also includes a Microsoft Cluster Server (MSCS) license and Microsoft iSCSI Software Target.
NOTE: See the QuickSpecs for Technical Specifications and additional information:
http://h18006.www1.hp.com/products/quickspecs/13334_div/13334_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. |

HP BladeSystem c-Class Overview

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.

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

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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

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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 BladeSystem c-Class Overview

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 (PN 436222-B21)

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

HP BladeSystem c-Class Overview

	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 Power Sizer

The HP BladeSystem Power Sizer helps in sizing the power infrastructure needed for a HP BladeSystem solution. This sizer enables effective planning for the power consumption and heat load of the BladeSystem at its site.

The sizer enables you to:

- Select the type and number of components within each Blade Server and Blade Enclosure.
- View the effect of component changes on the power consumption and heat loading.
- Review server loading and determine power supply and power subsystem requirements.
- Approximate electrical and heat load for facilities planning purposes.

The sizing estimate is based on component level power measurements for a system operating at very high enterprise application loads.

Values obtained from the BladeSystem Power Sizer are estimates for planning purposes only. Actual measured power consumption can be significantly lower or higher than the Power Sizer estimates. Actual power consumption varies with application type, application utilization, and ambient temperature.

The p-class BladeSystem and the c-Class BladeSystem solutions are supported in the BladeSystem Power Sizer.

Available at: www.hp.com/go/bladesystem/powercalculator

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

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 ISS 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 Platinum 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 Platinum 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 Platinum enclosure** Provides for hardware installation (c-Class ProLiant and Integrity server blades, storage blades, Ethernet

Service and Support

Interconnects and Virtual Connect) and software installation and startup of a BladeSystem c7000 Platinum 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

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 BCS C7000 Platinum 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 BCS C7000 Platinum 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

QuickSpecs

Service and Support

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 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/bladesystem

Configuration Information Factory Integrated Models

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 Storage blades

NOTE: HP BladeSystem c3000 and c7000 Platinum enclosures support mixing of G1 through Gen8, and Integrity server blades in the same enclosure

NOTE: For server blade information, please visit:

http://h18000.www1.hp.com/products/quickspecs/division/12534.html

NOTE: For Storage Blade information, please visit:

http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html

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.

Base Server Blade Enclosure Configuration

HP BladeSystem BLc7000 Platinum c-Class Server Blade Enclosures	HP D2220sb Configure-to-order Storage Blade	QW918A
	HP BLc7000 Platinum Configure-to-order Enclosure with ROHS Trial Insight Control License	681844-B21
	HP Integrity BLc7000 CTO Enclosure	AD361D
	NOTE: CTO models include 1x BladeSystem Onboard Administrator with KVM, 4x Active Cool 200 Fans and 0x power supplies. **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.	

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

HP Power Supplies	**c-Class Power Modules** (1 per enclosure)	
	HP Single Phase FIO Intelligent Power Module for c-Class BladeSystem	677595-B21
	HP BLc7000 3 PH Intl FIO Power Modue Option	413381-B21
	HP BLc7000 3 PH NA/JP FIO Power Module Option	413380-B21
	HP BLc7000 -48V DC Power Input Module	AH331A
	c-Class Power Supply (Up to 6)	
	HP 6X 2400W Platinum Hot Plug Factory Integrated Power Supply Kit **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:** 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:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2400W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus PLATINUM.	588603-B21

Configuration Information Factory Integrated Models

	HP 2400W Gold Hot Plug Power Supply Kit	499243-B21
	HP 2250W -48VDC Hot Plug Power Supply Kit	AH332A

NOTE: Only compatible with -48V DC Power Input Module.

NOTE: Mixing of power supplies in the same enclosure is Not SUPPORTED. All power supplies must be of the same type. All HP 2400W Platinum, 2400W HE, HP2250W, or -48V DC must be homogeneous.

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 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 Encl FIO Bundle 8 Lic	C6N32A
	HP Insight Control Enc FIO Bundle 16 Lic	C6N33A
	HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 16 Server FIO License	417688-B23
	HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 8 Server FIO License	439034-B23
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

Configuration Information Factory Integrated Models

Step 4: Select optional Redundant BladeSystem Onboard Administrator Capability

HP c-Class Enclosure Options	HP BLc7000 Onboard Administrator with KVM Option **NOTE:** With 1 Gb/s Adapters.	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.	

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). For detailed interconnect options consult the specific interconnect QuickSpecs:
http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html
A pair of interconnects must be ordered if redundancy is required.
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.

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 two HP Virtual Connect Flex-10 10Gb Ethernet modules plus one BL-c7000 enclosure license for HP Virtual Connect Enterprise Manager software. The license entitlement certificate must be redeemed online or via fax to obtain the VCEM license activation key.	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
	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

Configuration Information Factory Integrated Models

	Cisco Catalyst 1GbE 3120G Blade Switch	451438-B21
	Cisco Catalyst Blade Switch 3020 for HP c-Class BladeSystem	410916-B21
	HP Cisco B22HP Fabric Extender for BladeSystem c-Class	641146-B21
	HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class	657787-B21
	HP GbE2c Layer 2/3 Ethernet Blade Switch	438030-B21
	HP 1:10Gb Ethernet Blade Switch for c-Class BladeSystem	438031-B21
	HP MDS 8/12c BladeSystem Fabric Switch	AW563A
	HP MDS 8/24c BladeSystem Fabric Switch	AW564A
	Cisco MDS 9124e Switch for c-Class BladeSystem 12-port Upgrade LTU	T5169A
	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
	HP B-series 8/12c SAN Switch for BladeSystem c-Class	AJ820B
	HP B-series 8/24c SAN Switch for BladeSystem c-Class	AJ821B
	HP B-series 8/24c Power Pack+ SAN Switch for BladeSystem c-Class	AJ822B
	HP B-series 8/12c SAN Switch for BladeSystem c-Class 12-port Upgrade LTU	T5517A
HP SAS Switch	HP 3Gb 8-port SAS 2.0 BL-c Switch Module for BladeSystem c-Class Enclosure	AJ864A
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 (part numbers starting with 507) 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

Step 6: Select rack power distribution for single-phase models

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

Configuration Information Factory Integrated Models

HP Power Distribution Units	**HP Monitored Power Distribution Unit: Half Rack Version**	
	HP 17.3kVA 48A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF916A
	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 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)

NOTE: The Core Only Modular Power Distribution Unit Kits excludes the extension bars as they are not required with the HP BladeSystem

HP Two C13 PDU Extension Bar	AF500A

NOTE: Each extension bar has a C19 input and 7 C13 receptacles. The option is ideal for model S348, and, model S332, which both have only C19 outlets (12) and for all Core Only Modular PDUs.

Step 7: Select optional Power Cords for Single Phase Model (country specific power cords are listed under options)

NOTE: Default power cord is a 6ft IEC C19 - C20 cord

Configuration Information Factory Integrated Models

HP Intelligent Power Distribution Units Power cords (HP C19 to C20) **NOTE:** Order with P/N 677595-B21	HP 2.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK738A
	HP 2.0m 250V 16A C19-C20 WW Single 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

Related Options

HP BladeSystem c-Class Server Blade Enclosures	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: All c7000 BTO enclosures will ship with 15 server blanks. CTO enclosures will ship with the required number of server blanks.
NOTE: New models of the c7000 enclosure (part numbers 6818xx-B21) come as standard with the HP 2400W Platinum PSU and BladeSystem Onboard Administrator with KVM.

HP 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 (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.

	HP BLc7000 10000 Series Rack Shipping Bracket Option	433718-B21

NOTE: The shipping bracket is required when shipping a c7000 enclosure when installed in a rack. It is not required for normal operation.

	HP BLc7000 Miscellaneous Blanks Option Kit	412148-B21

NOTE: This kit should only be ordered to replace lost or damaged blanks.

	HP BLc7000 Server Blank w/Coupler Option	412150-B21

NOTE: The coupler allows half-height server blanks to be coupled together to create a full-height server blank.
NOTE: This kit should only be ordered to replace lost or damaged blanks.

HP Power Supplies	HP 2400W Platinum Hot Plug Power Supply Kit	588603-B21

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: HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2400W, 92%: Climate Savers Computing Initiative GOLD and ECOS Consulting 80 Plus GOLD.

	HP 2250W -48VDC Hot Plug Power Supply Kit	AH332A
	HP BLc7000 -48V DC Power Input Module	AH331A

NOTE: Mixing of power supplies in the same enclosure is not supported. All power supplies must be of the same type, all HP 2400W HE, all HP2250W or all -48V DC.
NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the

Related Options

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 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_div/12860_div.html (Worldwide)

	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
	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
	HP 1:10Gb Ethernet Blade Switch for c-Class BladeSystem	438031-B21
	HP MDS 8/12c BladeSystem Fabric Switch	AW563A
	HP MDS 8/24c BladeSystem Fabric Switch	AW564A
	Cisco MDS 9124e Switch for c-Class BladeSystem 12-port Upgrade LTU	T5169A

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.

Related Options

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
	HP B-series 8/12c SAN Switch for BladeSystem c-Class	AJ820B
	HP B-series 8/24c SAN Switch for BladeSystem c-Class	AJ821B
	HP B-series 8/24c Power Pack+ SAN Switch for BladeSystem c-Class	AJ822B
	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 MDS Fabric Manager Server for BladeSystem c-Class LTU **NOTE:** Licensed per switch.	TC316A
	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 3Gb 8-port SAS 2.0 BL-c Switch Module for BladeSystem c-Class Enclosure	AJ864A
	HP 6Gb SAS BL Switch Single Pack	BK763A
	HP 6Gb SAS BL Switch Dual Pack	BK764A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13960_div/13960_div.html (Worldwide)	
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
	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
HP Optical Drives	HP Integrity USB External DVD/RW Drive	AT120A

Related Options

HP Insight Software	**Insight Control**	
	HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 8 Server Electronic License	C6N32AAE
	HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 16 Server Electronic License	C6N33AAE

NOTE: With Insight Control release 7.2 the Insight Control server provisioning has been provided in place of Insight Control server deployment("RDP"). If Insight Control server deployment is required please contact your sales representative.

HP Insight Management Media Kit	436222-B21

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)

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	459864-B21

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)

Related Options

HP c-Class Storage Blades	HP StoreEver LTO-5 Ultrium SB3000c Tape Blade	BS580B
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html (Worldwide)	
	HP BL c-Class SB40c PCI Express Mezzanine Pass Thru Option Kit	431643-B21
	NOTE: The mezzanine card is needed to support the D2200sb storage blade with HP c-Class BladeSystem full-height server blades.	
	HP D2200sb PCIe and P4000 VSA with Smart Array Advance Pack LTU Bundle	AP881A
	HP D2200sb PCIe w/12 600GB 6G SAS HDD with Smart Array Advance Pack LTU Bundle	AP882A
	HP D2200sb PCIe Storage Blade with Smart Array Advance Pack LTU Bundle	BK781A
	HP D2220sb PCIe and StoreVirtual VSA Bundle with SAAP License	QW914A
	HP D2220sb PCIe w/(12) 900 GB 6G SAS HDD Bundle with SAAP License	QW915A
	HP D2220sb Storage Blade Bundle with SAAP License	QW916A
	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	
	HP X1800sb G2 Network Storage Blade	BV872A
	HP X3800sb G2 Network Storage Blade	BV874A
	HP StoreEasy 3830sb Gtwy Blade Storage	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 SB40c PCI Express Mezzanine Pass Thru Option Kit	431643-B21
	NOTE: The mezzanine card is needed to support the PCI Expansion Blade (P/N 448018-B21) with HP c-Class BladeSystem full-height server blades.	
HP Ultrium Tape Blades	HP StoreEver LTO-4 Ultrium SB1760c Tape Blade	AQ697B
	HP BL c-Class SB40c PCI Express Mezzanine Pass Thru Option Kit	431643-B21
	NOTE: The HP PCI Express Mezzanine Pass-Thru Card for HP BladeSystem (431643-B21) is required when installing a tape blade adjacent to a full-height server blade **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html (Worldwide)	

QuickSpecs

Related Options

HP Power Cords	**HP LV Power Cords100 - 120V AC**	
	HP C19 - JIS C8303 JP 100V 12Amp 3.6m Power Cord	391222-291
	HP C19 - Nema 5-20P US/CA 125V 20Amp 4.5m Power Cord	E7802A
	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	**HP Rack-mountable UPS**	
	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

Related Options

	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)
NOTE: For additional information on sizing your server, please reference:
http://www.upssizer.com

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 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

Related Options

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

HP KVM Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A
HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
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/11834_div/11834_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

Rack Options

HP Universal 10636 G2 Front Door	AF019A
HP 10K G2 600W Graphite Stabilizer Kit	AF062A
HP 10K G2 600W Heavy Duty Graphite Stabilizer Kit	AF064A

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

Related Options

<table>
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HP Airflow Optimization

HP 10000 Series Rack Airflow Optimization Kit

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.

</td><td>

AF090A

</td></tr>
</table>

HP Tape Backup	The following options are supported in an Enterprise Backup Solution (EBS) environment with the HP BladeSystem c-Class enclosure. Please visit: http://www.hp.com/go/ebs for complete compatibility details.	
	HP MSL2024 Tape Library	
	HP MSL2024 1 LTO-4 Ultrium 1840 Tape Library	AJ033A
	HP MSL2024 1 LTO-4 Ultrium 1840 Fibre Channel Tape Library	AJ034A
	HP MSL2024 1 Ultrium 920 Drive Tape Library	AH169A
	HP MSL4048 Tape Library	
	HP MSL4048 2 LTO-4 Ultrium 1840 Tape Library	AJ037A
	HP MSL4048 1 LTO-4 Ultrium 1840 Fibre Channel Tape Library	AJ036A
	HP MSL4048 2 LTO-4 Ultrium 1840 Fibre Channel Tape Library	AJ038A
	HP MSL4048 1 Ultrium 920 Drive Tape Library	AH171A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information or to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	

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 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.	
	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 3yr Provides annual personalized proactive supp for existing Proactive Care ISS centric environment	U6W98E
	Installation & Start-up Services	
	HP Startup Blade System c-Class Infrastructure Service	UE602E
	HP Startup Blade System c-Class Enhanced Network Service	UE603E

Related Options

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 BCS 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 Platinum Infrastructure Installation and Startup Service for Blade Hardware and Insight Control Software	HA114A1#57A
HP Startup BladSys c-Class Encd Ntwk SVC	HA124A1#56H

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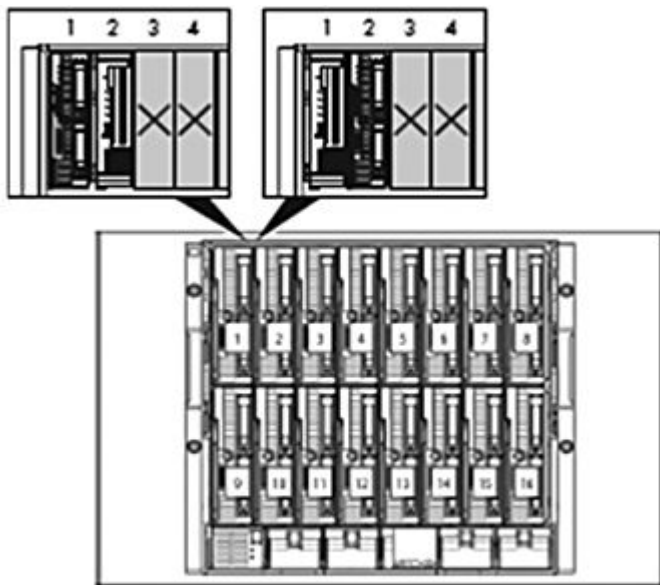
Storage

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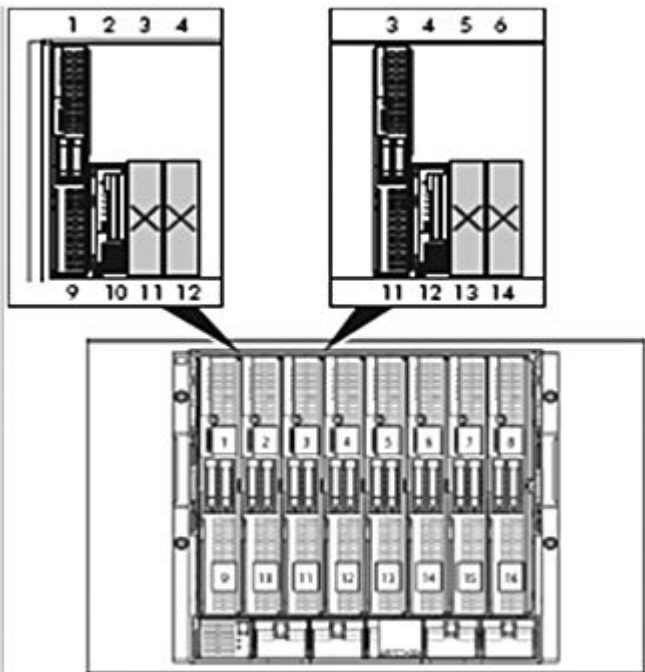

Figure 2   Installing a tape blade adjacent to a full-height server blade.

Installing Tape or Storage Blade

Description	Quantity Supported	Position Supported	Comments
Connecting a tape or storage blade to an adjacent half-height server blade (Figure 1)	Up to 8 per HP BladeSystem c-Class c7000 Platinum Enclosure	Odd or Even slots next to partner server blade	• A tape or storage blade supports one partner server blade, and one partner server blade supports one tape or storage blade. • Identify the partner server blade to be installed with the tape or storage. 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. • If the partner server blade is installed in an odd-numbered bay, the tape or storage blade is installed in the adjacent even-numbered bay to the right. • If the partner server blade is installed in an even-numbered bay, the tape or storage blade is installed in the adjacent odd-numbered bay to the left.
Connecting a tape or storage blade to an adjacent full-height server blade (Figure 2)	Up to 4 per HP BladeSystem c-Class c7000 Platinum Enclosure	Slots 10, 12, 14, or 16 (lower bays only)	• A tape or storage blade supports one partner server blade, and one partner server blade supports one tape or storage blade. • When partnering a tape or storage blade with a full height server blade, an HP PCI Express Mezzanine Pass-Thru Card for BladeSystem c-Class (431643-B21) is required. This card is installed in mezzanine 3 connector in the server blade. • Identify the partner server blade to be installed with the tape or storage blade. The two blades always occupy a pair of slots, as follows: 9 & 10, 11 & 12, 13 & 14, 15 & 16.

Storage

- The partner server blade is installed in an odd-numbered bay. The tape or storage blade is installed in the adjacent even-numbered bay to the right.
- The tape or storage blade is always located on the lower row of the enclosure in an even-numbered bay (slots 10, 12, 14 or 16)

Power Specifications

| **HP BLc7000 Platinum Enclosure 2400 Watts Platinum Efficiency 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

NOTE:

To review maximum system power ratings for facilities planning purposes use the Active Answers Power Calculator which is available via the online tool located at URL: http://www.hp.com/go/bladesystem/powercalculator

Technical Specifications

Server Blade and Fan Population Guidelines

Fan bay numbering
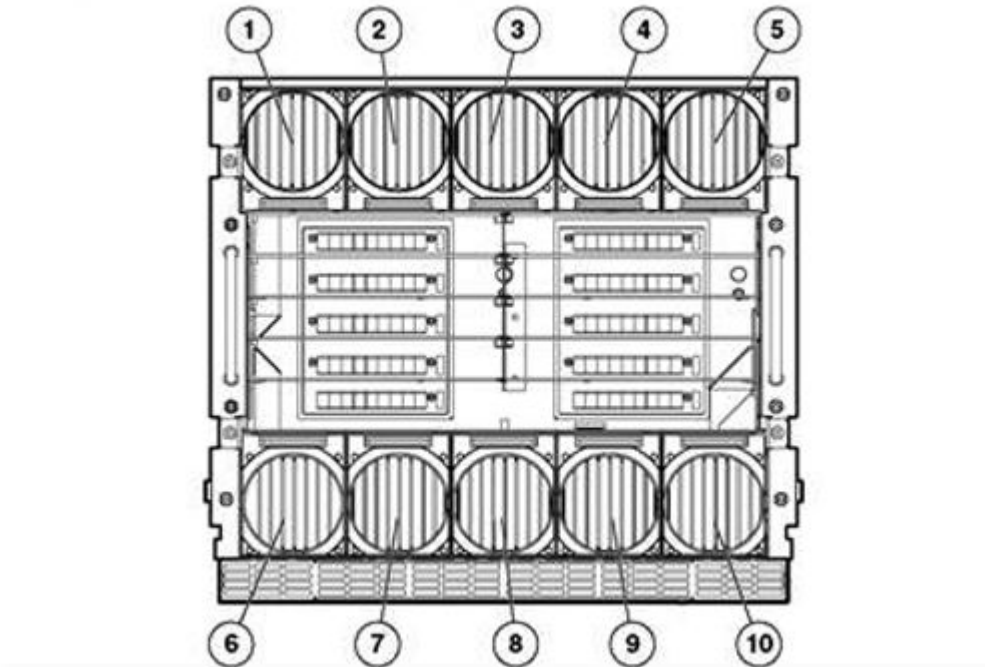
Fans must be placed in the following bays

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 BladeSystem Onboard Administrator will ensure that fans and blades are correctly placed before allowing systems to power on.

Technical Specifications

Half-height server blade bay numbering
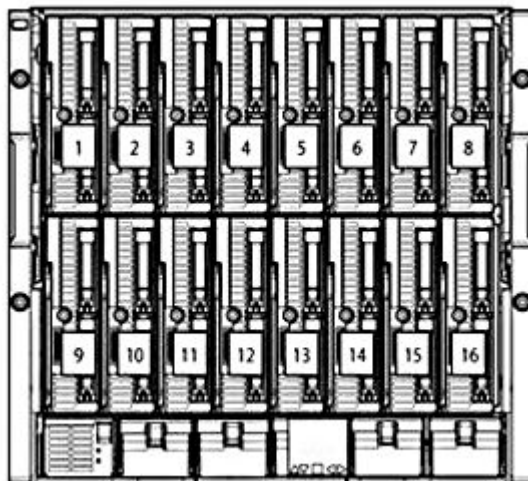
1. Device Bay 1	9. Device Bay 9
2. Device Bay 2	10. Device Bay 10
3. Device Bay 3	11. Device Bay 11
4. Device Bay 4	12. Device Bay 12
5. Device Bay 5	13. Device Bay 13
6. Device Bay 6	14. Device Bay 14
7. Device Bay 7	15. Device Bay 15
8. Device Bay 8	16. Device Bay 16

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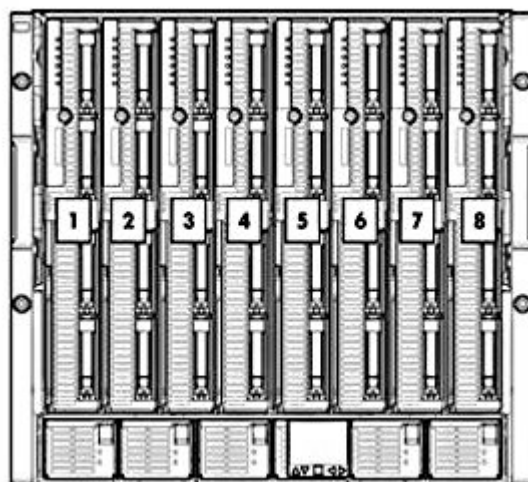
1. Device Bay 1	5. Device Bay 5
2. Device Bay 2	6. Device Bay 6
3. Device Bay 3	7. Device Bay 7

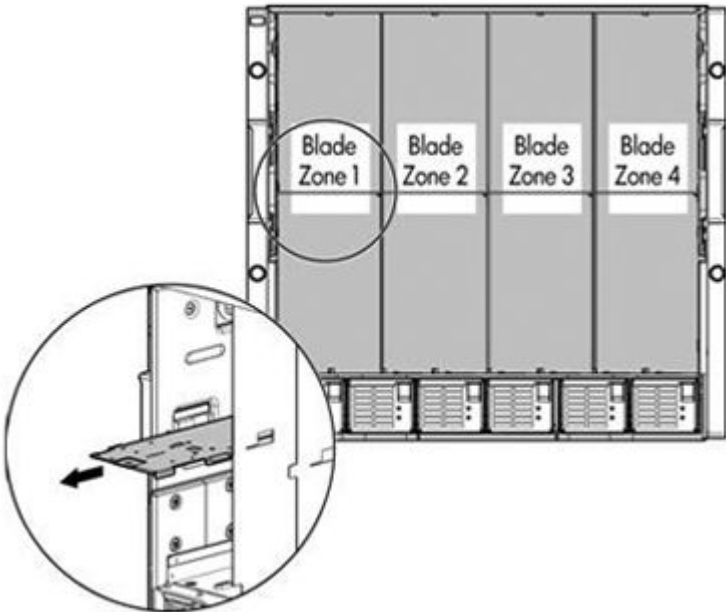## Technical Specifications

4. Device Bay 4   8. Device Bay 8

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

Mixed Configuration - Full Height and Half-Height Population rules

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

NOTE: Storage blades and Tape blades can be installed in the same quadrant as both full-height and half-height blades, a bracket ships with each D2200sb/Tape Blade that allows a half-height blade to be mounted on top of the storage blade.

NOTE: The lower tape or storage blade cannot be removed without first removing the upper half height blade.

HP BladeSystem c7000 Platinum 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)

Technical Specifications

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** 2400W PSU	Rated input frequency	50 to 60 Hz
		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
	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

Technical Specifications

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

Technical Specifications

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.