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)
QuickSpecs

HP BladeSystem c7000 Enclosure

Overview

What's New

- HP BLc Single Phase Intelligent Power Module

At A Glance

This document covers the HP BladeSystem 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:

HP BladeSystem c3000 Enclosure QuickSpecs:

HP BladeSystem solutions start with a BladeSystem c7000 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
A BladeSystem c7000 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 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 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 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:

HP ProLiant & Integrity Server Blades

Delivering best-in-class performance, choice and reliability on AMD Opteron™, Intel® Xeon® and Intel® Itanium 2® processors for Windows, Linux, Solaris, 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-, and four-processor server blades, with the widest range of performance, and form factors. For more information please see:

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 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 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:
**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:

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**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:

**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:

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**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.

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**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](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](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 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
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

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

<table>
<thead>
<tr>
<th>Optimized Care Package</th>
<th>3-Year HP 6 hour Call to Repair Response, Proactive Care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

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).

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.

<table>
<thead>
<tr>
<th>Standard Care</th>
<th>3-Year HP 24x7 4 hour response, Proactive Care Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

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).
QuickSpecs
HP BladeSystem c7000 Enclosure

Service and Support


**Related Services**

**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.


**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.


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


**HP BCS 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.


**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.


**HP BCS 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.


**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.

### Related Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HP Factory Express</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

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 [here](http://www.hp.com/go/insightremotesupport) and Insight Online [here](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 [here](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: [here](http://www.hp.com/services/bladesystem)
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 enclosures support mixing of G1 through Gen8 server blades in the same enclosure

**NOTE:** For server blade information, please visit:

**NOTE:** For Storage Blade information, please visit:

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.

Select Base Server Blade Enclosure Configuration

**HP BladeSystem BLc7000**

**c-Class Server Blade Enclosures**

- HP Blc7000 Configure-to-order 3 In LCD ROHS Enclosure
- HP Blc7000 Configure-to-order c-Class Enclosure
  **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 AD361C 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
  - HP Blc7000 1 PH FIO Power Module Option
  - HP Blc7000 3 PH FIO Power Module Option
  - HP Blc7000 -48V DC Power Input Module

- **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.
  - 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.
  - HP 6X 2400W Gold Hot Plug Factory Integrated Power Supply Kit
    **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
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 HE, all HP 2250W or all -48V DC.
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):

<table>
<thead>
<tr>
<th>HP Insight Software</th>
<th>Enclosure Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 16 Server FIO License</td>
<td>417688-B23</td>
</tr>
<tr>
<td>HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 8 Server FIO License</td>
<td>439034-B23</td>
</tr>
<tr>
<td>HP Virtual Connect Flex-10/10D Module for c-Class BladeSystem</td>
<td>638526-B21</td>
</tr>
<tr>
<td>HP Virtual Connect Flex-10/10D Module Enterprise Edition for BLc7000 Option</td>
<td>662048-B21</td>
</tr>
<tr>
<td>HP Insight Dynamics - VSE</td>
<td></td>
</tr>
<tr>
<td>HP Insight Dynamics-VSE with Insight Control Environment, 16-server license including 1 year of 24x7 Technical Support and Updates, FIO</td>
<td>483454-B21</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Options</th>
<th>HP c-Class Enclosure Onboard Administrator with KVM Option</th>
<th>456204-B21</th>
</tr>
</thead>
</table>

**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 507019-B21 and AD361C) 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](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.

<table>
<thead>
<tr>
<th>HP BladeSystem c-Class Network Interconnects</th>
<th>HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem</th>
<th>455880-B21</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Virtual Connect Flex-10 Ethernet Module Enterprise Edition for BLc7000 Option</td>
<td>591973-B21</td>
<td></td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>HP Virtual Connect FlexFabric 10/24 Enterprise Edition BLc7000 Option</th>
<th>605866-B21</th>
</tr>
</thead>
</table>

**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.

<table>
<thead>
<tr>
<th>HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem</th>
<th>571956-B21</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 6125G Ethernet Blade Switch</td>
<td>658247-B21</td>
</tr>
<tr>
<td>HP 6125G/XG Ethernet Blade Switch</td>
<td>658250-B21</td>
</tr>
<tr>
<td>HP 6120G/XG Ethernet Blade Switch</td>
<td>498358-B21</td>
</tr>
<tr>
<td>HP 6120XG Blade Switch</td>
<td>516733-B21</td>
</tr>
<tr>
<td>HP 1GB Ethernet Pass-Thru Module for c-Class BladeSystem</td>
<td>406740-B21</td>
</tr>
<tr>
<td>HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem</td>
<td>538113-B21</td>
</tr>
<tr>
<td>Cisco Catalyst 1/10GbE 3120X Blade Switch</td>
<td>451439-B21</td>
</tr>
<tr>
<td>Cisco Catalyst 1GbE 3120G Blade Switch</td>
<td>451438-B21</td>
</tr>
</tbody>
</table>
###Configuration Information Factory Integrated Models

- **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.

<table>
<thead>
<tr>
<th>HP BladeSystem</th>
<th>HP BladeSystem c-Class SAN Interconnects</th>
<th>HP SAS Switch</th>
<th>HP BladeSystem InfiniBand Interconnects</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Virtual Connect 8Gb 24-port Fibre Channel Module for c-Class BladeSystem</td>
<td>466482-B21</td>
<td>489184-B21</td>
<td>HP 4X QDR QLogic InfiniBand Switch Module for c-Class BladeSystem</td>
</tr>
<tr>
<td>HP Virtual Connect 8Gb 20-port Fibre Channel Module for c-Class BladeSystem</td>
<td>572018-B21</td>
<td>505958-B21</td>
<td>QLogic InfiniBand 4X QDR Management Module for c-Class BladeSystem</td>
</tr>
<tr>
<td>HP 4GB Fibre Channel Pass-thru Module for c-Class BladeSystem</td>
<td>403626-B21</td>
<td>505959-B21</td>
<td>HP 4X QDR InfiniBand Switch Module for c-Class BladeSystem</td>
</tr>
<tr>
<td>HP B-series 8/12c SAN Switch for BladeSystem c-Class</td>
<td>AJ820B</td>
<td>489184-B21</td>
<td><strong>NOTE:</strong> 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.</td>
</tr>
<tr>
<td>HP B-series 8/24c SAN Switch for BladeSystem c-Class</td>
<td>AJ821B</td>
<td></td>
<td>HP 4X FDR InfiniBand Managed Switch Module for c-Class BladeSystem</td>
</tr>
<tr>
<td>HP B-series 8/24c Power Pack+ SAN Switch for BladeSystem c-Class</td>
<td>AJ822B</td>
<td></td>
<td>HP 4X FDR InfiniBand Switch Module for c-Class BladeSystem</td>
</tr>
<tr>
<td>HP B-series 8/12c SAN Switch for BladeSystem c-Class 12-port Upgrade LTU</td>
<td>T5517A</td>
<td></td>
<td>648311-B21</td>
</tr>
<tr>
<td>HP 3Gb 8-port SAS 2.0 BL-c Switch Module for BladeSystem c-Class Enclosure</td>
<td>AJ864A</td>
<td></td>
<td>648312-B21</td>
</tr>
</tbody>
</table>

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

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

**HP Monitored Power Distribution Unit**

- HP 17.3kVA 48A Single Input Three Phase Monitored Power Distribution Unit
  
  **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:
  

**HP Modular Power Distribution Units**

- HP 17.3kVA 48A Three Phase Modular Power Distribution Unit
  
  AF511A

- HP 14.4kVA 40A Three Phase NA/JP Modular Power Distribution Unit
  
  AF519A

- HP 8.6kVA 24A Three Phase Modular Power Distribution Unit
  
  AF512A

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

- HP 4.9kVA 24A High Voltage Core Modular Power Distribution Unit
  
  252663-D74

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


**HP Two C13 PDU Extension Bar**

**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 (power cords are listed under options)**

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

**HP Intelligent Power Distribution Units Power cords (HP C19 to C20)**

- 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
## HP BladeSystem c-Class Server Blade Enclosures

<table>
<thead>
<tr>
<th>Enclosure Configuration</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP BLc7000 Enclosure with 1 Phase 6 Power Supply 10 Fan ROHS ICE License</td>
<td>507015-B21</td>
</tr>
<tr>
<td>HP BLc7000 Enclosure with 3 Phase 6 Power Supply 10 Fan ROHS ICE License</td>
<td>507017-B21</td>
</tr>
<tr>
<td>HP BLc7000 Enclosure with 3 Phase 6 Power Supply 10 Fan ROHS ICE License</td>
<td>507016-B21</td>
</tr>
<tr>
<td>HP BLc7000 Enclosure with 1 Phase 2 Power Supply 4 Fan ROHS ICE License</td>
<td>507014-B21</td>
</tr>
</tbody>
</table>

**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 5070xx-B21) come as standard with the HP 2400W HE PSU and BladeSystem Onboard Administrator with KVM.

## HP Enclosure Options

<table>
<thead>
<tr>
<th>Option Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP BLc7000 Onboard Administrator with KVM Option</td>
<td>456204-B21</td>
</tr>
</tbody>
</table>

**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 (P/Ns 507015-B21, 507017-B21, 507014-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.

<table>
<thead>
<tr>
<th>Option Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP BLc7000 10000 Series Rack Shipping Bracket Option</td>
<td>433718-B21</td>
</tr>
</tbody>
</table>

**NOTE:** The shipping bracket is required when shipping a c7000 enclosure when installed in a rack. It is not required for normal operation.  
<table>
<thead>
<tr>
<th>Option Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP BLc7000 Miscellaneous Blanks Option Kit</td>
<td>412148-B21</td>
</tr>
</tbody>
</table>

**NOTE:** This kit should only be ordered to replace lost or damaged blanks.  
<table>
<thead>
<tr>
<th>Option Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP BLc7000 Server Blank w/Coupler Option</td>
<td>412150-B21</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Power Supply Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 2400W Platinum Hot Plug Power Supply Kit</td>
<td>588603-B21</td>
</tr>
</tbody>
</table>

**NOTE:** HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 2400W, 94%: Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 Plus PLATINUM.  
<table>
<thead>
<tr>
<th>Power Supply Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 2400W Gold Hot Plug Power Supply Kit</td>
<td>499243-B21</td>
</tr>
</tbody>
</table>

**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.  
<table>
<thead>
<tr>
<th>Power Supply Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 2250W -48VDC Hot Plug Power Supply Kit</td>
<td>AH332A</td>
</tr>
<tr>
<td>HP BLc7000 -48V DC Power Input Module</td>
<td>AH331A</td>
</tr>
</tbody>
</table>

**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 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

**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

**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

**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

HP 6125G Ethernet Blade Switch
HP 6125G/XG Ethernet Blade Switch
HP 6120G/XG Ethernet Blade Switch
HP 6120XG Blade Switch
HP 1Gb Ethernet Pass-Thru Module for c-Class BladeSystem
HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem
Cisco Catalyst 1/10GbE 3120X Blade Switch
Cisco Catalyst 1GbE 3120G Blade Switch
Cisco Catalyst Blade Switch 3020 for HP c-Class BladeSystem
HP Cisco B22HP Fabric Extender for BladeSystem c-Class
HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class
HP GbE2c Layer 2/3 Ethernet Blade Switch
HP 1:10Gb Ethernet Blade Switch for c-Class BladeSystem
HP MDS 8/12c BladeSystem Fabric Switch

HP MDS 8/24c BladeSystem Fabric Switch
Cisco MDS 9124e Switch for c-Class BladeSystem 12-port Upgrade LTU

**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

HP Virtual Connect 8Gb 24-port Fibre Channel Module for c-Class BladeSystem
### 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
- **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 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


### 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

### 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 Server Electronic License** - TC276AAE
- **HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 16 Server Electronic License** - TC277AAE
- **HP iLO Advanced for BladeSystem including 1yr 24x7 Support Eight Server License** - 512489-B21
- **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](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:** Electronic licenses can be used to purchase multiple licenses with a single activation key

**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](http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html)
<table>
<thead>
<tr>
<th>Related Options</th>
<th>Description</th>
<th>SKU</th>
</tr>
</thead>
</table>
| **HP Virtual Connect Enterprise Manager** | HP Virtual Connect Enterprise Manager including 1yr 24x7 Support Single c7000 Enclosure Lic  
**NOTE:** This license allows 1 BL-c7000 enclosure to be managed with VCEM. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.  
**NOTE:** For additional license kits, please visit: http://h18000.www1.hp.com/products/quickspecs/12860_na/12860_na.html | 459864-B21 |
| **HP c-Class Storage Blades**       | HP LTO-5 SB3000c Tape Blade  
**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/12729_na/12729_na.html (Worldwide)  
HP BL c-Class SB40c PCI Express Mezzanine Pass Thru Option Kit  
**NOTE:** The mezzanine card is needed to support the D2200sb storage blade with HP c-Class BladeSystem full-height server blades.  
HP D2200sb Storage Blade  
**NOTE:** Please see the HP D2200sb Storage Blade QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13714_na/13714_na.html  
HP X1800sb G2 Network Storage Blade  
HP X3800sb G2 Network Storage Blade | BS580B       |
| **HP Expansion Blades**             | HP BLc PCI Expansion Blade  
**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12753_na/12753_na.html  
HP BL c-Class SB40c PCI Express Mezzanine Pass Thru Option Kit  
**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. | 431643-B21 |
| **HP Ultrim Tape Blades**           | HP LTO-4 SB1760c Tape Blade  
HP BL c-Class SB40c PCI Express Mezzanine Pass Thru Option Kit  
**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_na/12729_na.html | AQ697B    |
**HP Power Cords**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP C19 - Nema 5-20P US/CA 125V 20Amp 4.5m Power Cord</td>
<td>E7802A</td>
<td></td>
</tr>
<tr>
<td><strong>HP C19 - C20 Jumper Cords</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord</td>
<td>AF575A</td>
<td></td>
</tr>
<tr>
<td>HP C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord</td>
<td>AF574A</td>
<td></td>
</tr>
<tr>
<td>HP C19 - C20 WW 250V 16Amp 2.5m Jumper Cord</td>
<td>295633-B22</td>
<td></td>
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<tr>
<td>HP C19 - C20 WW 250V 16Amp 4.5m Jumper Cord</td>
<td>E7804A</td>
<td></td>
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<tr>
<td><strong>HP HV Power Cords 200 - 240V AC</strong></td>
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</tr>
<tr>
<td>HP C19 - Nema L6-30P US/CA 250V 16Amp 4.5m Power Cord</td>
<td>E7805A</td>
<td></td>
</tr>
<tr>
<td>HP C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord</td>
<td>AF593A</td>
<td></td>
</tr>
<tr>
<td>HP C19 - IEC-309 DK/SE/AR 250V 16Amp 3.6m Power Cord</td>
<td>AF581A</td>
<td></td>
</tr>
<tr>
<td>HP 240 VAC 4.5M Unterminated End Power Cord</td>
<td>E7806A</td>
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</tr>
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</table>

**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**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HP Rack-mountable UPS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R5000 Uninterruptible Power System (UPS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP RSKVA 3U L630 High Voltage NA/JP Uninterruptible Power System</td>
<td>AF460A</td>
<td></td>
</tr>
</tbody>
</table>

**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 RSKVA 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

**NOTE:** For additional information on sizing your server, please reference: http://www.upssizer.com
### HP Rack Series

**HP Rack 10000 G2 Series (Graphite Metallic)**
- HP 642 1075mm Pallet Intelligent Series Rack
- HP 642 1075mm Shock Intelligent Series Rack

**NOTE:** HP BladeSystem c7000 Enclosure is not supported in a 14U rack

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

**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 Keyboard/Mouse Kit
  - 631341-B21

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

- HP TFT7600 G2 KVM Console Rackmount Keyboard Monitor
  - AZ870A
- HP TFT7600 G2 KVM Console Rackmount Keyboard TAA Monitor
  - AZ885A

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

**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:

**NOTE:** Cat5e cables are required to connect Interface Adapters to Consoles Switches. Cat5e 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 36U Rack Rear Extension Kit AF060A
- HP 10K G2 600W Graphite Stabilizer Kit AF062A
- HP 10K G2 600W Heavy Duty Graphite Stabilizer Kit AF064A
- HP 10000 G2 Series Rack Grounding Kit AF074A
- HP 600W 10K G2 Rack Tie Down Kit AF076A

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

**HP Airflow Optimization**

- HP 10000 Series 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.

---

**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 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 3y 4h 24x7 c7000 ProCare Service U3C33E
Related Options

HP 3y 6h CTR 24x7 c7000 ProCare SVC  U3C36E
HP 3y 4h 24x7 c7000 w/IC ProCare Service  U3P10E
HP 3y 6h CTR 24x7 c7000 w/IC ProCare SVC  U3P13E

**HP Proactive Care Personalized Support - Environmental Option**
HP 3y ISS ProactiveCare PersonalizedSUPP  U6W98E

**Installation & Start-up Services**
HP Startup Blade System c-Class Infrastructure Service  UE602E
HP Startup Blade System c-Class Enhanced Network Service  UE603E
HP Install c-Class Enclosure & ServerBlade Service  UE494E
HP Install nonStdHrs c7000 Encl&Bld SVC  UG870E

**NOTE:** Additional HP Care Pack services can be found at: [http://www.hp.com/go/cpc](http://www.hp.com/go/cpc)

HP 3 Years 4 Hour 24 hours

**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 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
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, Electronic  HA114A1#57A
HP Startup BladSys c-Class Encd Ntwk SVC HA124A1#56H

**NOTE:** Additional HP Care Pack services can be found at: [http://www.hp.com/go/cpc](http://www.hp.com/go/cpc)
### Installing Tape or Storage Blade

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity Supported</th>
<th>Position Supported</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Connecting a tape or storage blade to an adjacent half-height server blade (Figure 1) | Up to 8 per HP BladeSystem c-Class c7000 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 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-Through 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)
## HP BLc7000 Enclosure 2400 Watts Platinum Efficiency Power Supply

<table>
<thead>
<tr>
<th>Part Number</th>
<th>588603-B21</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Voltage Range</strong> (Vrms)</td>
<td>200-240</td>
</tr>
<tr>
<td><strong>Frequency Range</strong> (Nominal) (Hz)</td>
<td>50 / 60</td>
</tr>
<tr>
<td><strong>Nominal Input Voltage</strong> (Vrms)</td>
<td></td>
</tr>
<tr>
<td>Maximum Rated Output Wattage</td>
<td>2450</td>
</tr>
<tr>
<td>Nominal Input Current (A rms)</td>
<td>13.9</td>
</tr>
<tr>
<td>Maximum Rated Input Wattage Rating (Watts)</td>
<td>2692</td>
</tr>
<tr>
<td>Maximum Rated VA (Volt-Amp)</td>
<td>2778</td>
</tr>
<tr>
<td>Efficiency (%) at Max. Rated Output Wattage</td>
<td>91</td>
</tr>
<tr>
<td>Power Factor</td>
<td>0.98</td>
</tr>
<tr>
<td>Leakage Current (mA)</td>
<td>0.97</td>
</tr>
<tr>
<td>Maximum Inrush Current (A peak)</td>
<td>100</td>
</tr>
<tr>
<td>Maximum Inrush Current duration (mS)</td>
<td>10</td>
</tr>
<tr>
<td>Maximum British Thermal Unit Rating (BTU-Hr)</td>
<td>9186</td>
</tr>
</tbody>
</table>

**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](http://www.hp.com/go/bladesystem/powercalculator)
Server Blade and Fan Population Guidelines

Fan bay numbering

Fans must be placed in the following bays

<table>
<thead>
<tr>
<th>Number of Fans</th>
<th>Fan Bays Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4, 5, 9, 10</td>
</tr>
<tr>
<td>6</td>
<td>3, 4, 5, 8, 9, 10</td>
</tr>
<tr>
<td>8</td>
<td>1, 2, 4, 5, 6, 7, 9, 10</td>
</tr>
<tr>
<td>10</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10</td>
</tr>
</tbody>
</table>

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

The c7000 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.

<table>
<thead>
<tr>
<th>HP BladeSystem c7000 Server Blade Enclosure</th>
<th>Dimensions</th>
<th>Height</th>
<th>17.4 in (442 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>17.6 in (447.04 mm)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depth</td>
<td>32 in (813 mm)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Height</th>
<th>29.88 in (759 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>23.88 in (607 mm)</td>
</tr>
<tr>
<td></td>
<td>Depth</td>
<td>39.88 in (1013 mm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single Phase Enclosure</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unboxed</td>
<td>192 lb (87 kg)</td>
</tr>
<tr>
<td>Shipping</td>
<td>235 lb (106.6 kg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Three -Phase Enclosure</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unboxed</td>
<td>222 lb (100.7 kg)</td>
</tr>
<tr>
<td>Shipping</td>
<td>265 lb (120.2 kg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DC Input Enclosure</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unboxed</td>
<td>151 lb (68.5 kg)</td>
</tr>
<tr>
<td>Shipping</td>
<td>194 lb (88 kg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max Enclosure Weight (approximate)</th>
<th>Unboxed</th>
<th>450 lb (204 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping</td>
<td>493 lb (223.6 kg)</td>
<td></td>
</tr>
</tbody>
</table>
Temperature Range

<table>
<thead>
<tr>
<th></th>
<th>Operating</th>
<th>Non-Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating</td>
<td>50° to 95° F (10° to 35° C)</td>
<td>-22° to 140° F (-30° to 60° C)</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Relative Humidity

<table>
<thead>
<tr>
<th></th>
<th>Operating</th>
<th>Non-Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating</td>
<td>10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.</td>
<td>5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.</td>
</tr>
<tr>
<td>Non-Operating</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

Power

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

**Input Requirements - Three Phase 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 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**: 2 x NEMA L15-30p 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
### Technical Specifications

<table>
<thead>
<tr>
<th>Output Specifications (per power supply)</th>
<th>HP 2400W High Efficiency Hot-Plug Power Supply</th>
<th>HP 2250W -48V DC Hot-Plug Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200 - 240 VAC 2400 W 92% Efficiency</td>
<td>2250W</td>
</tr>
</tbody>
</table>

### 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).

<table>
<thead>
<tr>
<th>Condition</th>
<th>LWAd</th>
<th>LpAm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idle</td>
<td>7.1 Bels</td>
<td>54 dBA</td>
</tr>
<tr>
<td>Operating</td>
<td>7.2 Bels</td>
<td>54 dBA</td>
</tr>
</tbody>
</table>

### Option Kits

<table>
<thead>
<tr>
<th>Power Supply Option Shipping Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td>Weight</td>
</tr>
</tbody>
</table>

### 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

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](http://www.hp.com/go/green). To recycle your product, please go to: [http://www.hp.com/go/green](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](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.
QuickSpecs

Technical Specifications

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