HP BladeSystem c7000 Enclosure - Front View
1-16. Device Bays 1-16
17-22. Power Supply Bays 1-6
23. Insight Display

HP BladeSystem c7000 Enclosure - Rear View
1. Active Cool 200 Fans and Fan Bays
2. Interconnect Module Bays
3. BladeSystem Onboard Administrator (left) and optional redundant Onboard Administrator (right)
4. Power Inputs (single-phase 200-240V AC model shown)

What's New
- Support for the HP ProLiant BL460c Gen9 Server Blade
HP BladeSystem c-Class

HP BladeSystem c-Class c7000 Enclosure

HP BladeSystem solutions start with either a BladeSystem c7000 or c3000 enclosure. For the c7000 enclosure, key enclosure options include hot-plug power supplies, power input module, hot-plug HP Active Cool 200 Fans, and an optional redundant BladeSystem Onboard Administrator module. Once the enclosure and its key components have been selected, the following components can be added:

- Interconnect modules, HP ProLiant and Integrity server blades, expansion blades, and HP OneView or Insight Control management software. For information on these options please visit: http://www.hp.com/go/bladesystem.

**NOTE:** HP BladeSystem c3000 and c7000 Enclosures support G1 through Gen9 ProLiant and Integrity server blades, subject to support requirements of the Onboard Administrator. Certain HP ProLiant server blades and options may require a specific version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For further information, please see the HP Service Pack for ProLiant (SPP) website and the HP Support Center document “HP ProLiant Server Blades – Compatibility with HP BladeSystem c7000 and c3000 Enclosures and Firmware”.

A BladeSystem c7000 Enclosure holds up to 16 server blades and up to 8 expansion blades (not exceeding 16 blades total) plus redundant network and storage interconnects. It includes a shared, multi-terabit high-speed midplane 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 server blades, 8 full-height server blades, and/or 8 expansion blades per enclosure (not exceeding 16 total blades).
  **NOTE:** For information on mixing half-height server blades, full-height server blades, and expansion blades, please see the section titled “Device Bay and Fan Bay Numbering and Population Guidelines” later in this document.
- Up to 4 redundant interconnect I/O fabrics (Ethernet, Fibre Channel, InfiniBand, iSCSI, SAS, etc.) supported simultaneously within the enclosure.
- Choice of single-phase high-line AC, three-phase high-line AC, single-phase high voltage AC, -48V DC, or high voltage DC power options for flexibility in connecting to datacenter power.
- HP Thermal Logic technology to minimize power consumption and reduce cooling.
- A minimum of four hot-plug HP Active Cool 200 Fans. For additional capacity, redundancy, and improved power consumption and acoustics, Active Cool 200 Fan kits can be added for a maximum of 10 fans.
- Redundant hot-plug cooling, redundant hot-plug power supplies, redundant connections, redundant interconnect modules, and optional redundant BladeSystem Onboard Administrator management module.

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
HP BladeSystem c-Class overview

- can be managed as easily as one server.
- Management and network interconnects extend scalability beyond a single enclosure, allowing resources to be pooled and shared across multiple enclosures.
- 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.
- Reduced and simplified cabling in comparison to rack-mounted servers.
- Investment protection supporting G1 through Gen9 server blades.

HP BladeSystem c-Class c3000 Enclosure

For customers that need a smaller blade system, the HP BladeSystem c-Class c3000 Enclosure 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 please visit http://www.hp.com/go/bladesystem.

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 visit http://www.hp.com/go/bladesystem.

HP D2200sb Storage Blade

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

Direct attached storage

The D2220sb Storage Blade delivers direct attached storage for c-Class Gen8 and greater server blades with support for up to twelve hot plug small form factor (SFF) SAS or SATA Midline hard disk drives or SAS/SATA SSDs. The enclosure backplane provides a PCI Express connection to an adjacent c-Class server blade and enables high performance storage access without any additional cables. The D2220sb Storage Blade features an onboard Smart Array P420i controller with 2GB flash-backed write cache for increased performance and data protection. Up to eight D2220sb storage devices can be supported in a single BladeSystem c7000 Enclosure for up to 115.2 TB of capacity.

Two ways to create shared storage with the D2220sb

Use HP StoreVirtual VSA software to turn the D2220sb into an iSCSI SAN for use by all servers in the enclosure and any server on the network. HP VSA software is installed in a virtual machine on a VMware ESX host server adjacent to the D2220sb. HP StoreVirtual VSA turns the D2220sb into a scalable and robust iSCSI SAN, featuring storage clustering for scalability, network RAID for storage failover, thin provisioning, snapshots, remote replication, and cloning. Expand capacity within the same enclosure or to other BladeSystem enclosures by adding additional D2220sb Storage Blades and HP VSA licenses. A cost effective bundle of the D2220sb Storage Blade and a HP StoreVirtual VSA license makes purchasing convenient. If storage needs increase, add HP P4300 or P4500 systems externally and manage everything via a single pane of glass.

The HP StoreEasy 3830 and 3840 Gateway Storage Blades are flexible storage server solutions for BladeSystem environments. Combine the StoreEasy 3830 or 3840 with the D2220sb Storage Blade to enable file serving and iSCSI shared storage inside the BladeSystem enclosure.

NOTE: The D2220sb requires a c7000 Enclosure configuration with 10 fans.

For more information, please visit http://h18004.www1.hp.com/products/quickspecs/14507-div/14507-div.html
HP Ultrim Tape Blades
Tape blades are ideal for HP BladeSystem c-Class customers who need a data protection solution but are not connected into a storage area network (SAN). They provide direct attach data protection for the adjacent server and network backup protection for all other data within the enclosure. The HP tape blades are the industry's first bladed tape drives and are developed exclusively for the BladeSystem c-Class enclosures.

For more information, please visit:

Dynamic Power Capping
HP Dynamic Power Capping is the industry's first 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 -48VDC input module, the G2 1000 Series Rack Extension is required to allow DC power cabling to be installed.
CAUTION: For the complete list of installation requirements, please see the HP BladeSystem c-Class Site Planning Guide at http://www.hp.com/support.

Third-party racks
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 server rack includes closing front and rear doors, you must have a minimum of 65% free area compared to the total area of the door evenly distributed from top to bottom to permit adequate airflow.
- Front door: The clearance from face of rack to inside of the front door must be a minimum of 77 mm (3 in).
- Rear door: The clearance between the rear of the enclosure and the rear rack door must be a minimum of 175 mm (6.9 in) to accommodate system cabling.
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 70 mm (2.75 in).
- Width: 483 mm (19 in)
- Depth: Maximum clearance between front and rear RETMA rails is 864 mm (34 in). Minimum clearance for round-hole racks is 627 mm (24.7 in). Minimum clearance for square-hole racks is 635 mm (25 in).

The rack must be able to accept the adjustable rack rails that are shipped with each enclosure:
- Minimum rail length: 635 mm (25 in)
- Maximum rail length: 864 mm (34 in)

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.
CAUTION: For the complete list of installation requirements, please see the HP BladeSystem c-Class Site Planning Guide at http://www.hp.com/support.
Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging and custom packaging. HP products supported through Factory Express include a wide array of servers and storage—HP Integrity, HP ProLiant & HP ProLiant & Integrity Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to http://www.hp.com/go/factory-express.

HP Simple Configurator

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

HP Insight Management software

Insight Management

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

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

Electronic download of Insight Management Media

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

Software media available for download includes:

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

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

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

HP provides a complete range of installation and support services to ensure the successful deployment and operations of your server infrastructure. For more information about support services and licensing...
Insight Software Media Kit (DVDs)
Physical media (DVDs) are also available for purchase from HP or from your authorized reseller

**Service Pack for ProLiant (SPP)**
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](http://www.hp.com/go/spp)
- SPP downloads webpage: [www.hp.com/go/spp/download](http://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](http://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](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](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](http://www.hp.com/go/matrixoe).

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

For more information on HP OneView management, see: [http://www.hp.com/go/oneview](http://www.hp.com/go/oneview).
The HP Power Advisor is a tool provided by Hewlett-Packard to assist in the estimation of power consumption and proper selection of components including power supplies at a system, rack, and multi-rack level. A variety of additional features are also provided including a condensed bill of materials, a cost of ownership calculator, and a power report. The HP Power Advisor allows for the mixing of rack, tower, blade, and other products in a single environment.

HP highly recommends using the HP Power Advisor tool to ensure the number of power supply options you have selected can fully support your BladeSystem configuration and to review maximum system power ratings for facilities planning purposes.


**Warranty**

- This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

- Enclosure: Three-year parts and labor, on-site limited global warranty. Certain restrictions and exclusions apply
- Enclosure options: Fans, power supplies, BladeSystem Onboard Administrator, 1 year parts only or enclosure warranty
- HP BladeSystem Interconnects: 1 year parts and labor, on-site regardless of the warranty period for the system in which they are installed
- HP Storage Fibre Channel switches have a maximum warranty period of one (1) year regardless of the warranty period for the system in which they are installed
- Hard drives have either a one year or three year warranty; refer to specific hard drive QuickSpecs for details.
Service and Support HP Technology Services for Industry Standard Servers and BladeSystem
Capitalize on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

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

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

Choose a recommended service appropriate to your ISS or Integrity product or contact your HP sales representative or authorized HP ServiceOne partner for additional HP Care Pack services information.

Recommended HP Care Pack Services for your HP product

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

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.

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.

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.
**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](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](http://www.hp.com/go/cpc).

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**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](http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-1613ENW.pdf).

**HP Integrity C7000 Enclosure Startup Service**


**HP Installation and Startup Service for HP BladeSystem c-Class Enhanced Network**


**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](http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-1614ENW.pdf).

**HP Integrity C7000 Enclosure Startup Service**


**HP Installation and Startup Service for HP BladeSystem c-Class Enhanced Network**


**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](http://hp.com/go/factoryexpress).

**Insight Online/Insight Remote Support**

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](http://www.hp.com/go/hpsc).

HP’s Support Center Mobile App allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalize IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

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

**Parts and Materials**

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

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

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

**For more information**

To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit [www.hp.com/services/bladesystem](http://www.hp.com/services/bladesystem).
**NOTE:** HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.

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

**NOTE:** HP BladeSystem c3000 and c7000 Enclosures support G1 through Gen9 ProLiant and Integrity server blades in the same enclosure. The Onboard Administrator firmware must be at the minimum version level that supports all the devices and options installed within the enclosure. For server blade and option information, please visit: [http://www.hp.com/go/bladesystem](http://www.hp.com/go/bladesystem).

**NOTE:** HP BladeSystem c3000 and c7000 Enclosures support G1 through Gen9 ProLiant and Integrity server blades, subject to support requirements of the Onboard Administrator. Certain HP ProLiant server blades and options may require a specific version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For further information, please see the HP Service Pack for ProLiant (SPP) website and the HP Support Center document [HP ProLiant Server Blades - Compatibility with HP BladeSystem c7000 and c3000 Enclosures and Firmware](http://www.hp.com/support/c7000).

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**HP BladeSystem c-Class Server Blade Enclosures**

**NOTE:** The c7000 Platinum Enclosure 763850-B21 includes sixteen (16) HP OneView licenses, six (6) 2400W Platinum hot-plug power supplies each with a worldwide 250W C19 - C20 2.0m jumper cord, a single-phase 200-240V AC Intelligent Power Module, ten (10) hot-plug Active Cool 200 Ffans, an Onboard Administrator with KVM, and the following blanking panels: 15 device bay, 7 interconnect module bay, and 1 redundant Onboard Administrator module bay.

**HP BladeSystem c7000 Platinum Enclosure with 1 Phase 6 Pwr Supplies 10 Fans ROHS 16 OneView Licenses**

**NOTE:** The c7000 Platinum Enclosure 681842-B21 includes sixteen (16) HP Insight Control licenses, six (6) 2400W Platinum hot-plug power supplies each with a worldwide 250W C19 - C20 2.0m jumper cord, a single-phase 200-240V AC Intelligent Power Module, ten (10) hot-plug Active Cool 200 Ffans, an Onboard Administrator with KVM, and the following blanking panels: 15 device bay, 7 interconnect module bay, and 1 redundant Onboard Administrator module bay.

**HP BladeSystem c7000 Platinum Enclosure with 1 Phase 6 Power Supplies 10 Fans ROHS 16 Insight Control Licenses**

**NOTE:** The c7000 Platinum Enclosure 681840-B21 includes sixteen (16) HP Insight Control trial licenses, two (2) 2400W Platinum hot-plug power supplies each with a worldwide 250W C19 - C20 2.0m jumper cord, a single-phase 200-240V AC Intelligent Power Module, four (4) hot-plug Active Cool 200 Ffans, an Onboard Administrator with KVM, and the following blanking panels: 15 device bay, 4 power supply bay, 6 fan bay, 7 interconnect module bay, and 1 redundant Onboard Administrator module bay.

**HP BladeSystem c7000 Platinum Enclosure w/ 1 Phase 2 Power Supplies 4 Fans ROHS Trial Insight Control License**
NOTE: This section lists some of the required and optional steps to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends contacting your local sales representative for information on Factory Integrated Model product offerings and requirements.

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

Step 1: Select desired model, configuration, and quantity of HP ProLiant server and expansion blades per enclosure (required)

NOTE: Each BladeSystem c7000 Enclosure holds up to 16 half-height server blades, 8 full-height server blades, and/or 8 expansion blades per enclosure (not exceeding 16 total blades).

NOTE: HP BladeSystem c3000 and c7000 Enclosures support G1 through Gen9 ProLiant and Integrity server blades, subject to support requirements of the Onboard Administrator. Certain HP ProLiant server blades and options may require a specific version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For further information, please see the HP Service Pack for ProLiant (SPP) website and the HP Support Center document "HP ProLiant Server Blades - Compatibility with HP BladeSystem c7000 and c3000 Enclosures and Firmware".

Step 2: Determine the HP BladeSystem c-Class Enclosure(s) and choose options (required)

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

Select the base server blade enclosure configuration (required)

<table>
<thead>
<tr>
<th>HP BladeSystem BLc7000 c-Class Server Blade Enclosures</th>
<th>HP BLc7000 Configure-to-order Platinum Enclosure with ROHS Trial Insight Control License 681844-B21</th>
<th>HP Integrity BLc7000 CTO Enclosure AD361D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NOTE: The AD361D enclosure is suggested for configurations primarily used with Integrity blades.</td>
</tr>
</tbody>
</table>

Select the enclosure power and cooling options (required)

<table>
<thead>
<tr>
<th>HP c-Class Power Systems</th>
<th>c-Class Power Modules (1 per enclosure)</th>
<th>HP BLc7000 Single Phase F10 Intelligent Power Module 677595-B21</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NOTE: This power module is for single phase, high-line 200-240VAC applications and has six blue IEC-320 C20 power connectors that accept IEC C19-C20 power cables.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOTE: The blue power connectors indicate HP Power Discovery Services capability. HP Power Discovery Services are enabled when used with a HP Power Discovery Services-enabled power system including an Intelligent Power Distribution Unit (iPDU), C19-C20 iPDU cables, and the Platinum power supply kits 733460-B21, 733459-B21, 517521-B21, or 588603-B21. See the iPDU, iPDU cable, c-Class Power Supply sections below for these options.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOTE: Also accepts standard (non-iPDU) C19 to C20 power cables, but HP Power Discovery Services are disabled. One WW 250W C19-C20 2.0m (non-iPDU) cable is included per supported power supply. Supported power supplies are listed here.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOTE: This power module may be used with the power supply kits 733460-B21, 733459-B21, 517521-B21, 588603-B21, 517521-B21, or 499243-B21. See the c-Class Power Supply section below for the power supply kits.</td>
</tr>
<tr>
<td></td>
<td>HP BLc7000 1 PH F10 Power Module Option 413379-B21</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOTE: This power module is for single phase, high-line 200-240VAC applications and...</td>
</tr>
</tbody>
</table>
has six IEC-320 C20 power connectors that accept IEC C19-C20 power cables. One WW 250W C19-C20 2.0m (non-iPDU) cable is included per supported power supply. Supported power supplies are listed here.

NOTE: This power module may be used with the power supply kits 733460-B21, 733459-B21, 517521-B21, 588603-B21, 517521-B21, or 499243-B21. See the c-Class Power Supply section below for the power supply kits.

NOTE: This power module disables HP Power Discovery Services.

HP BLc7000 3 PH Intl FIO Power Module Option

NOTE: This power module is for three phase, high-line 200-240VAC international applications and has two 3.05m (10 ft) power cables with IEC-309 200/346 V - 240/415 V, 5-Pin, 6h, 16A connectors.

NOTE: This power module may be used with the power supply kits 733460-B21, 733459-B21, 517521-B21, 588603-B21, 517521-B21, or 499243-B21. See the c-Class Power Supply section below for the power supply kits.

NOTE: This power module disables HP Power Discovery Services.

NOTE: This power module requires a minimum of 3 power supply option kits. For full redundancy, 6 power supply option kits are required.

HP BLc7000 3 PH NA/JP FIO Power Module Option

NOTE: This power module is for three phase, high-line 200-208VAC North America and Japan applications and has two 3.05m (10 ft) power cables with NEMA L15-30p connectors.

NOTE: This power module may be used with the power supply kits 733460-B21, 733459-B21, 517521-B21, 588603-B21, 517521-B21, or 499243-B21. See the c-Class Power Supply section below for the power supply kits.

NOTE: This power module disables HP Power Discovery Services.

NOTE: This power module requires a minimum of 3 power supply option kits. For full redundancy, 6 power supply option kits are required.

HP BLc7000 -48V DC Power Input Module

NOTE: This power module is for -36VDC to -72VDC applications and has 4SDG 4AWG 1/4 2H terminal lug connectors. It is used with the HP 2250W -48VDC Hot Plug Power Supply Kit, AH332A. See the c-Class Power Supply section below for the power supply kits.

NOTE: This power module disables HP Power Discovery Services.

HP HVDC 1PH AC Power Module BLc FIO Option

NOTE: This power module is for 277VAC and 380VDC applications and has six APP Safe-Grid connectors. It is used with the HP 2650W Universal Hot Plug Power Supply Kits (753618-B21 or 753619-B21). See the c-Class Power Supply section below for the power supply kits.

NOTE: Cables are not included and may be ordered separately; see cable options J6X01A, J6X02A, J6X03A (277VAC applications) and J6W98A, J6W99A, J6X00A (277VAC or 380VDC applications).

NOTE: This power module disables HP Power Discovery Services.

c-Class Power Supply (Up to 6)

NOTE: HP highly recommends using the HP Power Advisor tool to ensure the number of power supply options you have selected can fully support your BladeSystem configuration and to review maximum system power ratings for facilities planning purposes. HP Power Advisor is available at http://www.hp.com/go/hppoweradvisor.

NOTE: Each enclosure must include only one type of power supply. Mixing of power supplies is not supported, except during hot swaps to different level or higher efficient power supplies. The Onboard Administrator will exhibit a mismatch error due to mixed power supplies until all power supplies are matched.

NOTE: If a three phase power module is selected (413380-B21 or 413381-B21), a minimum of 3 power supply option kits is required. For full redundancy, 6 power supply option kits are required.

NOTE: HP c7000 enclosure AC power supplies meet 80 PLUS Platinum or Gold power
efficiency requirements—Platinum (94%) and Gold (92%). 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. DC power supplies are not eligible for 80 PLUS testing; efficiency is per HP internal testing.

HP 6X 2650W Platinum Hot Plug FIO Power Supply Kit

NOTE: This power supply kit enables HP Power Discovery Services when used with the HP BLC7000 Single Phase FIO Intelligent Power Module 677595-B21. See the Class Power Modules section above for the power modules.

NOTE: Includes a quantity of 6 HP 2650W Platinum 94% power supplies so a full enclosure can be configured with a single part number.

NOTE: Includes six WW 250W C19 - C20 2.0m Jumper Cords.

NOTE: This power supply kit meets multiple energy efficiency initiatives—2650W, 94%—Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 PLUS Platinum.

HP 2650W Platinum Hot Plug Power Supply Kit

NOTE: This power supply kit enables HP Power Discovery Services when used with the HP BLC7000 Single Phase FIO Intelligent Power Module 677595-B21. See the Class Power Modules section above for the power modules.

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

NOTE: This power supply kit meets multiple energy efficiency initiatives—2650W, 94%—Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 PLUS Platinum.

HP 6X 2400W Platinum Hot Plug Power Supply Kit

NOTE: This power supply kit enables HP Power Discovery Services when used with the HP BLC7000 Single Phase FIO Intelligent Power Module 677595-B21. See the Class Power Modules section above for the power modules.

NOTE: Includes a quantity of 6 HP 2400W Platinum 94% efficient power supplies so a full enclosure can be configured with a single part number.

NOTE: Includes six WW 250W C19 - C20 2.0m Jumper Cords.

NOTE: This power supply kit meets 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: This power supply kit enables HP Power Discovery Services when used with the HP BLC7000 Single Phase FIO Intelligent Power Module 677595-B21. See the Class Power Modules section above for the power modules.

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

NOTE: This power supply kit meets multiple energy efficiency initiatives—2400W, 94%—Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 PLUS Platinum.

HP 6X 2400W Gold Hot Plug Power Supply Kit

NOTE: This power supply kit disables HP Power Discovery Services.

NOTE: Includes six WW 250W C19 - C20 2.0m Jumper Cords.

NOTE: Includes a quantity of 6 HP 2400W Gold 92% efficient power supplies so a full enclosure can be configured with a single part number.

HP 2400W Gold Hot Plug Power Supply Kit

NOTE: This power supply kit disables HP Power Discovery Services.

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

HP 2250W -48VDC Hot Plug Power Supply Kit

NOTE: This power supply kit disables HP Power Discovery Services.

NOTE: Compatible with the HP BLC7000 -48V DC Power Input Module AH331A. See the Class Power Modules section above for the power modules.
HP 2650W Universal Hot Plug Power Supply Kit

NOTE: This power supply kit disables HP Power Discovery Services.

NOTE: Compatible with the HP HVDC 1PH AC Power Module BLc FIO Option 753623-B21. See the c-Class Power Modules section above for the power modules.

NOTE: Cables are not included and may be ordered separately; see cable options J6X01A, J6X02A, J6X03A (277VAC applications) and J6W98A, J6W99A, J6X00A (277VAC or 380VDC applications).

HP 6X 2650W Universal Hot Plug Power Supply Kit

NOTE: This power supply kit disables HP Power Discovery Services.

NOTE: Compatible with the HP HVDC 1PH AC Power Module BLc FIO Option 753623-B21. See the c-Class Power Modules section above for the power modules.

NOTE: Cables are not included and may be ordered separately; see cable options J6X01A, J6X02A, J6X03A (277VAC applications) and J6W98A, J6W99A, J6X00A (277VAC or 380VDC applications).

NOTE: Includes a quantity of 6 2650W universal power supplies so a full enclosure can be configured with a single part number.

HP Cooling Options

c-Class Active Cool 200 Fan (Up to 6)

NOTE: A minimum of 4 Active Cool 200 Fans is required to a maximum of 10 Active Cool 200 Fans. The enclosure selected in Step 2 already includes 4 fans allowing up to 6 additional.

NOTE: Ten Active Cool 200 Fans are strongly recommended for maximum cooling efficiency and redundancy, reduced power consumption, and reduced noise.

NOTE: Enclosures configured with a three-phase power input module require a minimum of 6 Active Cool 200 Fans.

NOTE: Some blade configurations require 10 Active Cool 200 Fans.

NOTE: For the complete list of fan requirements and recommendations, see the Server Blade and Fan Population Guidelines section of this document.

HP BLc 6X Active Cool 200 Factory Integrated Fan Option

NOTE: This option (517520-B21) includes a quantity of 6 HP Active Cool 200 Fans so a full enclosure can be configured with 10 fans using a single part number.

HP BLc7000 Enclosure HP Single Active Cool Fan Option Kit

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

HP OneView Software

HP OneView incl 3yr 24x7 Supp Enclosure Bundle 16 Swr E-LTU

NOTE: Server provisioning capability (i.e. ‘Insight Control server provisioning’) is included and licensed as part of HP OneView. This capability is ideal for multi-server OS and driver provisioning to ProLiant and BladeSystem servers. A media kit (HP Insight Control server provisioning USB media kit & BD883A), which includes a USB flash drive, is available for customers who require a physical copy of the software on media. This media kit is separate and in addition to the HP OneView Media Kit & ESY37A.

NOTE: HP OneView licenses ship without media. The HP OneView Media Kit can be ordered separately (part number ESY37A), or can be downloaded at http://www.hp.com/go/oneview.

HP Insight Software

NOTE: The Insight Control licenses listed below support HP ProLiant c-Class server blades.

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: 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
Step 4: Select a redundant BladeSystem Onboard Administrator (optional)

<table>
<thead>
<tr>
<th>HP c-Class Enclosure Options</th>
<th>HP Bc7000 Onboard Administrator with KVM Option</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOTE</strong> The HP c7000 Onboard Administrator (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, ftftp, local client file using the GUI or USB key containing the OA firmware file).</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong> The c7000 enclosure (part numbers 681840-B21, 681842-B21, 681844-B21, 763850-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.</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong> HP BladeSystem c3000 and c7000 Enclosures support Gen9 ProLiant and Integrity server blades, subject to support requirements of the Onboard Administrator. Certain HP ProLiant server blades and options may require a specific version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For further information, please see the HP Service Pack for ProLiant (SPP) website and the HP Support Center document &quot;HP ProLiant Server Blades - Compatibility with HP BladeSystem c7000 and c3000 Enclosures and Firmware&quot;.</td>
<td></td>
</tr>
</tbody>
</table>

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

The following is a list of various HP BladeSystem c-Class interconnect modules (Virtual Connect, Ethernet, Fibre Channel, InfiniBand, and SAS interconnects). A pair of interconnects must be ordered if redundancy is required. For detailed interconnect options, consult the specific interconnect QuickSpecs: [http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html](http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html).

**NOTE** Options to specific c-Class interconnects are not included in the list below. Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.

**NOTE** Interconnect Bay 1 must contain one of the Network Interconnects.

**NOTE** The HP BladeSystem c-Class interconnects ship as single units unless otherwise noted. Interconnects must be ordered in quantities of two for redundancy support.

<table>
<thead>
<tr>
<th>HP BladeSystem c-Class Network Interconnects</th>
<th>HP Virtual Connect FlexFabric-20/40 F8 Module for c-Class BladeSystem</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOTE</strong> Virtual Connect FlexFabric-20/40 F8 modules are supported on c7000 enclosures with the following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21.</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong> A c7000 enclosure with a 10 fan configuration is required when one or more HP Virtual Connect FlexFabric-20/40 F8 module(s) are installed.</td>
<td></td>
</tr>
<tr>
<td>HP Virtual Connect FlexFabric-20/40 F8 Module for c-Class BladeSystem with TAA</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong> Virtual Connect FlexFabric-20/40 F8 modules are supported on c7000 enclosures with the following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21.</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong> A c7000 enclosure with a 10 fan configuration is required when one or more HP Virtual Connect FlexFabric-20/40 F8 module(s) are installed.</td>
<td></td>
</tr>
</tbody>
</table>
### HP Virtual Connect Flex-10/10D Module Enterprise Edition for BLc7000 Option

**NOTE**: 662048-B21 includes 2 x HP Virtual Connect Flex-10/10D modules plus 1 x VCEM 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>Model</th>
<th>SKU</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Virtual Connect Flex-10/10D Module for c-Class BladeSystem</td>
<td>638526-B21</td>
</tr>
<tr>
<td>HP Virtual Connect FlexFabric 10/24 Enterprise Edition BLc7000 Option</td>
<td>605865-B21</td>
</tr>
<tr>
<td>HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem</td>
<td>571956-B21</td>
</tr>
<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 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>Mellanox SX1018HP Ethernet Switch for c-Class BladeSystem</td>
<td>689638-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>
<tr>
<td>HP Cisco B22HP Fabric Extender for BladeSystem c-Class</td>
<td>641146-B21</td>
</tr>
<tr>
<td>HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class</td>
<td>657787-B21</td>
</tr>
</tbody>
</table>

### HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem

**NOTE**: 605865-B21 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>Model</th>
<th>SKU</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem</td>
<td>571956-B21</td>
</tr>
<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 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>Mellanox SX1018HP Ethernet Switch for c-Class BladeSystem</td>
<td>689638-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>
<tr>
<td>HP Cisco B22HP Fabric Extender for BladeSystem c-Class</td>
<td>641146-B21</td>
</tr>
<tr>
<td>HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class</td>
<td>657787-B21</td>
</tr>
</tbody>
</table>

### HP BladeSystem SAN Interconnects

**NOTE**: HP Fibre Channel interconnect switches and modules with 8Gb downlinks (connection speed from the server blades to the interconnect) are supported on c7000 enclosures with the following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21.

<table>
<thead>
<tr>
<th>Model</th>
<th>SKU</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Virtual Connect 8Gb 24-port Fibre Channel Module for c-Class BladeSystem</td>
<td>466482-B21</td>
</tr>
<tr>
<td>HP Virtual Connect 8Gb 20-port Fibre Channel Module for c-Class BladeSystem</td>
<td>572018-B21</td>
</tr>
<tr>
<td>HP 4Gb Fibre Channel Pass-thru Module for c-Class BladeSystem</td>
<td>403626-B21</td>
</tr>
<tr>
<td>Brocade 8/12c SAN Switch for BladeSystem c-Class</td>
<td>AJ820B</td>
</tr>
<tr>
<td>Brocade 8/24c SAN Switch for BladeSystem c-Class</td>
<td>AJ821B</td>
</tr>
<tr>
<td>Brocade 8/24c Power Pack+ SAN Switch for BladeSystem c-Class</td>
<td>AJ822B</td>
</tr>
<tr>
<td>Cisco MDS 8/12c Fabric Switch for HP BladeSystem c-Class</td>
<td>AW563A</td>
</tr>
<tr>
<td>Cisco MDS 8/24c Fabric Switch for HP BladeSystem c-Class</td>
<td>AW564A</td>
</tr>
<tr>
<td>Brocade 16Gb/28 SAN Switch for BladeSystem c-Class</td>
<td>C8546A</td>
</tr>
<tr>
<td>Brocade 16Gb/16 SAN Switch for BladeSystem c-Class</td>
<td>C8545A</td>
</tr>
<tr>
<td>Brocade 16Gb/28 SAN Switch Power Pack+ for BladeSystem c-Class</td>
<td>C8547A</td>
</tr>
<tr>
<td>Brocade 8/16Gb Embedded FC Switch 12-port Upgrade LTU</td>
<td>T5517A</td>
</tr>
</tbody>
</table>

### HP BladeSystem c-Class SAN Interconnects

**NOTE**: HP Fibre Channel interconnect switches and modules with 8Gb downlinks (connection speed from the server blades to the interconnect) are supported on c7000 enclosures with the following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21.

<table>
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<tr>
<th>Model</th>
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</tr>
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<tr>
<td>HP Virtual Connect 8Gb 24-port Fibre Channel Module for c-Class BladeSystem</td>
<td>466482-B21</td>
</tr>
<tr>
<td>HP Virtual Connect 8Gb 20-port Fibre Channel Module for c-Class BladeSystem</td>
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</tr>
<tr>
<td>HP 4Gb Fibre Channel Pass-thru Module for c-Class BladeSystem</td>
<td>403626-B21</td>
</tr>
<tr>
<td>Brocade 8/12c SAN Switch for BladeSystem c-Class</td>
<td>AJ820B</td>
</tr>
<tr>
<td>Brocade 8/24c SAN Switch for BladeSystem c-Class</td>
<td>AJ821B</td>
</tr>
<tr>
<td>Brocade 8/24c Power Pack+ SAN Switch for BladeSystem c-Class</td>
<td>AJ822B</td>
</tr>
<tr>
<td>Cisco MDS 8/12c Fabric Switch for HP BladeSystem c-Class</td>
<td>AW563A</td>
</tr>
<tr>
<td>Cisco MDS 8/24c Fabric Switch for HP BladeSystem c-Class</td>
<td>AW564A</td>
</tr>
<tr>
<td>Brocade 16Gb/28 SAN Switch for BladeSystem c-Class</td>
<td>C8546A</td>
</tr>
<tr>
<td>Brocade 16Gb/16 SAN Switch for BladeSystem c-Class</td>
<td>C8545A</td>
</tr>
<tr>
<td>Brocade 16Gb/28 SAN Switch Power Pack+ for BladeSystem c-Class</td>
<td>C8547A</td>
</tr>
<tr>
<td>Brocade 8/16Gb Embedded FC Switch 12-port Upgrade LTU</td>
<td>T5517A</td>
</tr>
</tbody>
</table>

### HP BladeSystem

**NOTE**: The HP QDR InfiniBand Switches are supported on c7000 enclosures with the...
### InfiniBand Interconnects

Following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21.

**NOTE:** The HP FDR InfiniBand Switches are supported on c7000 enclosures with the following SKUs: 686610-B21, 686611-B21, and 7XXXXX-B21.

- HP 4X QDR QLogic InfiniBand Switch Module for c-Class BladeSystem 505958-B21
- QLogic InfiniBand 4X QDR Management Module for c-Class BladeSystem 505959-B21
- HP 4X QDR InfiniBand Switch Module for c-Class BladeSystem 489184-B21
- HP 4X FDR InfiniBand Managed Switch Module for c-Class BladeSystem 648311-B21
- HP 4X FDR InfiniBand Switch Module for c-Class BladeSystem 648312-B21

### Step 6—Select rack (optional)

**NOTE:** Additional HP Data Center racks are available than those listed below. For information on the full line of HP Data Center Racks and rack accessories, please see [http://www.hp.com/go/rackandpower](http://www.hp.com/go/rackandpower).

- **HP Data Center Racks**
  - HP 11000 G2 Series Racks
    - HP 11642 1075mm Shock Universal Rack H6J66A
    - HP 11642 1200mm Shock Universal Rack H6J68A
    - HP 11648 1075mm Shock Universal Rack H6J88A
    - HP 11842 1200mm Shock Universal Rack H6J70A
  - HP Intelligent Series Rack
    - HP 636 1075mm Shock Intelligent Series Rack BW896A
    - HP 642 1075mm Shock Intelligent Series Rack BW904A
    - HP 647 1075mm Shock Intelligent Series Rack BW912A
- **HP Location Discovery Services**
  - HP 47U Location Discovery Kit BW947A
  - HP 42U Location Discovery Kit BW946A
  - HP 36U Location Discovery Kit BW945A

### Step 7—Select rack power distribution unit (PDU) (optional)

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

**NOTE:** Additional HP Power Distribution Units (PDUs) are available than those listed below. For a complete list of all HP PDUs, please visit: [http://www.hp.com/go/rackandpower](http://www.hp.com/go/rackandpower).

- **HP Power Distribution Units (PDUs)**
  - HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU H5M59A
  - HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU H5M62A
  - HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU H5M64A
  - HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU H5M70A
  - HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU H5M72A
- **HP Remote Monitoring Power Distribution Units (mPDUs)**
  - HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU D9N47A
  - HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU D9N51A
QuickSpecs

HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU
D9N53A

HP 14.4kVA 208 Volt C58365C 3-Phase Input (12xC13/12xC19) NA Monitored PDU
D9N58A

HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU
D9N62A

HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU
D9N54A

HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU
D9N59A

HP 17.3kVA 208 Volt IEC309 60A 3-Phase Watertight Input (12xC13/12xC19) NA/JP Monitored PDU
G9Z07A

HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU
D9N48A

HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU
D9N50A

HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU
D9N57A

HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU
D9N60A

HP 22kVA 400 Volt IEC309 32A 3-Phase Watertight Input (12xC13/12xC19) INTL Monitored PDU
G9Z08A

HP Environmental Sensor for Remote Monitored PDUs
E2D53A

NOTE: The HP Environmental Sensor collects temperature and humidity information in the rack and can be monitored via the local LCD display or remotely using Telnet or a standard web interface. The sensor can also monitor the status of two user supplied contact devices.

HP Intelligent Power Distribution Units (iPDUs)

HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit
AF520A

HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit
AF522A

HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit
AF523A

HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit
AF535A

HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit
AF537A

HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit
AF525A

HP 7.3kVA 32A Single Input Three Phase INTL Intelligent Modular Power Distribution Unit
AF536A

HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit
AF526A

HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit
AF527A

HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit
AF538A

Step 8: Select an uninterruptible power system (UPS) (optional)

NOTE: Additional HP Uninterruptable Power Systems (UPSs) are available than those listed here. For a complete list of all HP UPSs and additional information, please visit http://www.hp.com/go/rackandpower

HP Uninterruptible Power Systems (UPSs)

R5000 Uninterruptible Power System (UPS)

HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System
AF460A

HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System
AF461A

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
## QuickSpecs

### HP BladeSystem c7000 Enclosure

#### Configuration Information Factory Integrated Models

**HP R8000/3 Uninterruptible Power System (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 Uninterruptible Power System (UPS)**
- 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

---

### Step 9: Select power cords (optional)

**NOTE:** For additional power cable information, please visit: http://h18000.www1.hp.com/products/servers/proliantstorage/power-protection/options/power-cable.html.

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

**NOTE:** Order with HP Single Phase FIO Intelligent Power Module for c-Class BladeSystem (677595-B21). These power cables enable Power Discovery Services communications between the HP BladeSystem c7000 Enclosure and HP Intelligent PDUs.

**NOTE:** These power cables are designated by bright blue IEC connectors.

- 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 2.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord TK738A
- HP 2.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord TK739A
- HP 2.5m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord TK740A
- HP 2.5m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord TK741A
- HP 3.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord TK742A
- HP 3.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord TK743A

#### HP Power Distribution Units Power cords (HP C19 to C20)

- HP C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord AF575A
- HP C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord AF574A
- HP C19 - C20 WW 250V 16Amp 2.5m Jumper Cord 295633-B22
- HP C19 - C20 WW 250V 16Amp 4.5m Jumper Cord E7804A
Additional HP power Cords

<table>
<thead>
<tr>
<th>HP High Line Power Cords 200 - 240V AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP C19 - Nema L6-30P US/CA 250V 16Amp 4.5m Power Cord</td>
</tr>
<tr>
<td>HP C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord</td>
</tr>
<tr>
<td>HP C19 - NBR-14136 BR 250V 16Amp 2.5m Power Cord</td>
</tr>
<tr>
<td>HP C19 - BS-1363/A UK/HK/SG 250V 13Amp 3.6m Power Cord</td>
</tr>
<tr>
<td>HP C19 - CEE-VII EU 250V 16Amp 3.6m Power Cord</td>
</tr>
<tr>
<td>HP C19 - AS3112-3 AU/NZ 250V 15Amp 3.6m Power Cord</td>
</tr>
<tr>
<td>HP C19 - SABS-164 ZA 250V 16Amp 3.6m Power Cord</td>
</tr>
<tr>
<td>HP C19 - CEE-23-50 IT/CL 250V 16Amp 3.6m Power Cord</td>
</tr>
<tr>
<td>HP C19 - IEC-309 DK/SE/AR 250V 16Amp 3.6m Power Cord</td>
</tr>
<tr>
<td>HP C19 - IS-1293 IN/PK/BD 250V 16Amp 2.5m Power Cord</td>
</tr>
<tr>
<td>HP C19 - ISI-32 IL 250V 16Amp 2.5m Power Cord</td>
</tr>
<tr>
<td>HP C19 - GB-1002 CN 250V 16Amp 2.5m Power Cord</td>
</tr>
<tr>
<td>HP C19 - CNS-690 TW 250V 16Amp 2.5m Power Cord</td>
</tr>
<tr>
<td>HP High Voltage Power Cords 277V AC, 380V DC</td>
</tr>
</tbody>
</table>

NOTE: Power cables J6W98A, J6W99A, and J6X00A are intended for 277VAC or 380VDC APP Saf-D-Grid to APP Saf-D-Grid applications.

NOTE: Power cables J6X01A, J6X02A, and J6X03A are intended for 277VAC APP Saf-D-Grid to LS-25 applications.

| HP SDGRD-SDGRD 380V 15A DC 0.76m Jpr Crd               |
| HP SDGRD-SDGRD 380V 15A DC 1.37m Jpr Crd              |
| HP SDGRD-SDGRD 380V 15A DC 2.0m Jpr Crd               |
| HP SDGRD-LS25 277V 15A AC 0.76m Jpr Crd               |
| HP SDGRD-LS25 277V 15A AC 1.37m Jpr Crd               |
| HP SDGRD-LS25 277V 15A AC 2.0m Jpr Crd                |

E7805A AF593A AF592A 359615-031 AF576A AF577A AF579A AF580A AF581A AF582A AF583A AF584A AF585A J6W98A J6W99A J6X00A J6X01A J6X02A J6X03A
**HP Enclosure Options**

**NOTE:** The HP c7000 Onboard Administrator (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:** The c7000 enclosure (part numbers 681840-B21, 681842-B21, 681844-B21, 763850-B21, and AD361D) come with a BladeSystem Onboard Administrator with KVM as standard. Order this part number (456204-B21) when a second redundant BladeSystem Onboard Administrator is desired for a c7000 enclosure.

**NOTE:** HP BladeSystem c3000 and c7000 Enclosures support G1 through Gen9 ProLiant and Integrity server blades, subject to support requirements of the Onboard Administrator. Certain HP ProLiant server blades and options may require a specific version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For further information, please see the HP Service Pack for ProLiant (SPP) website and the HP Support Center document HPProLiant Server Blades – Compatibility with HP BladeSystem c7000 and c3000 Enclosures and Firmware.

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

**NOTE:** Contains 1 each of c3000/c7000 Active Cool Fan blank, c3000/c7000 interconnect module blank, c7000 Onboard Administrator blank, c3000 local KVM blank, c3000 power supply blank, c7000 power supply blank, c3000 DVD blank, and a c3000 mini-divider.

**NOTE:** This kit is designed to replace lost or damaged blanks, or if reconfiguring an enclosure where additional blanks are required.

**NOTE:** This option contains one half-height device blank and a coupler that can be used for the c3000 and c7000 enclosures.

**NOTE:** Order quantity of one 412150-B21 for filling a half-height bay; the coupler is not used.

**NOTE:** Order quantity of two 412150-B21 for filling a full-height bay. One coupler is installed between the two half-height blanks to be connected together to create a full-height blank.

**NOTE:** This kit is designed to replace lost or damaged blanks, or if reconfiguring an enclosure where additional blanks are required.

**NOTE:** HP highly recommends using the HP Power Advisor tool to ensure the number of power supply options you have selected can fully support your BladeSystem configuration and to review maximum system power ratings for facilities planning purposes. HP Power Advisor is available at http://www.hp.com/go/hppoweradvisor.

**NOTE:** Mixing of power supplies is not supported on BladeSystem c7000 Enclosures, except during hot swaps to different level power supplies. The Onboard Administrator will exhibit a mismatch error due to mixed power supplies until all power supplies are matched.

**NOTE:** If a three phase power module is selected (413380-B21 or 413381-B21), a minimum of 3 power supply option kits are required. For full redundancy, 6 power supply option kits are required.

**NOTE:** HP c7000 enclosure AC power supplies meet 80 PLUS Platinum or Gold power efficiency requirements: Platinum (94%) and Gold (92%). 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. DC power supplies are not eligible for 80 PLUS testing. Efficiency is per HP internal testing.

**HP 2650W Platinum Hot Plug Power Supply Kit**

*NOTE:* This power supply kit enables HP Power Discovery Services when used with the HP Blc7000 Single Phase FIO Intelligent Power Module 677595-B21. See the c-Class Power Modules section above for the power modules.

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

*NOTE:* This power supply kit meets multiple energy efficiency initiatives: 2650W, 94% – Climate Savers Computing Initiative PLATINUM and ECOS Consulting 80 PLUS Platinum.

**HP 2400W Platinum Hot Plug Power Supply Kit**

*NOTE:* This power supply kit enables HP Power Discovery Services when used with the HP Blc7000 Single Phase FIO Intelligent Power Module 677595-B21. See the c-Class Power Modules section above for the power modules.

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

*NOTE:* This power supply kit meets 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**

*NOTE:* This power supply kit disables HP Power Discovery Services.

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

**HP 2250W -48VDC Hot Plug Power Supply Kit**

*NOTE:* This power supply kit disables HP Power Discovery Services.

*NOTE:* Only compatible with the HP Blc7000 -48V DC Power Input Module AH331A. See the c-Class Power Modules section above for the power modules.

**HP 2650W Universal Hot Plug Power Supply Kit**

*NOTE:* This power supply kit disables HP Power Discovery Services.

*NOTE:* Compatible with the HP HVDC 1PH AC Power Module Blc FIO Option 753623-B21. See the c-Class Power Modules section above for the power modules.

*NOTE:* Cables are not included and may be ordered separately; see cable options J6X01A, J6X02A, J6X03A (277VAC applications) and J6W98A, J6W99A, J6X00A (277VAC or 380VDC applications).

**HP Cooling Options**

**HP c-Class Active Cool Fan**

HP Blc7000 Enclosure HP Single Active Cool Fan Option Kit

*NOTE:* A minimum of 4 Active Cool 200 Fans is required to a maximum of 10 Active Cool 200 Fans.

*NOTE:* Ten Active Cool 200 Fans are strongly recommended for maximum cooling efficiency and redundancy, reduced power consumption, and reduced noise.

*NOTE:* Enclosures configured with a three-phase power input module require a minimum of 6 Active Cool 200 Fans.

*NOTE:* Some blade configurations require 10 Active Cool 200 Fans.

*NOTE:* For the complete list of fan requirements and recommendations, see the Server Blade and Fan Population Guidelines section of this document.


*NOTE:* Options to specific c-Class interconnects are NOT included in the list below. Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.

*NOTE:* Interconnect Bay 1 must contain one of the Ethernet capable interconnect modules.

*NOTE:* The HP BladeSystem c-Class interconnects ship as single units unless otherwise noted. Interconnects must be ordered in quantities of two for redundancy support.
**QuickSpecs**

**HP BladeSystem c7000 Enclosure**

**Related Options**

HP Virtual Connect FlexFabric-20/40 F8 Module for c-Class BladeSystem  
**NOTE:** Virtual Connect FlexFabric-20/40 F8 modules are supported on c7000 enclosures with the following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21. 
**NOTE:** A c7000 enclosure with a 10 fan configuration is required when one or more HP Virtual Connect FlexFabric-20/40 F8 Module(s) are installed.

HP Virtual Connect FlexFabric-20/40 F8 Module for c-Class BladeSystem with TAA  
**NOTE:** Virtual Connect FlexFabric-20/40 F8 modules are supported on c7000 enclosures with the following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21. 
**NOTE:** A c7000 enclosure with a 10 fan configuration is required when one or more HP Virtual Connect FlexFabric-20/40 F8 Module(s) are installed.

HP Virtual Connect Flex-10/10D Module Enterprise Edition for BLc7000 Option  
**NOTE:** 662048-B21 includes 2 x HP Virtual Connect Flex-10/10D modules plus 1 x VCEM 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 Flex-10/10D Module for c-Class BladeSystem  

HP Virtual Connect Flex-10/24 Enterprise Edition BLc7000 Option  
**NOTE:** 605865-B21 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 6120XG Blade Switch  

HP 1GB Ethernet Pass-Thru Module for c-Class BladeSystem  

HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem  

Mellanox SX1018HP Ethernet Switch for c-Class BladeSystem  

Cisco Catalyst 1/10GbE 3120X Blade Switch  

Cisco Catalyst 1GbE 3120G Blade Switch  

HP Cisco B22HP Fabric Extender for BladeSystem c-Class  

HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class  

**NOTE:** Options to specific c-Class interconnects are NOT included in the list below. Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.  
**NOTE:** Interconnect Bay 1 must contain one of the Ethernet capable interconnect modules.  
**NOTE:** The HP BladeSystem c-Class interconnects ship as single units unless otherwise noted. Interconnects must be ordered in quantities of two for redundancy support.  
**NOTE:** HP Fibre Channel interconnect switches and modules with 8Gb downlinks (connection speed from the server blades to the interconnect) are supported on c7000 enclosures with the following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21.

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

HP Virtual Connect 8Gb 20-port Fibre Channel Module for c-Class BladeSystem  

HP 4Gb Fibre Channel Pass-thru Module for c-Class BladeSystem  

Brocade 8/12c SAN Switch for BladeSystem c-Class  

Brocade 8/24c SAN Switch for BladeSystem c-Class  

Brocade 8/12c SAN Switch for BladeSystem c-Class  

Brocade 8/24c SAN Switch for BladeSystem c-Class  

**HP BladeSystem c-Class SAN Interconnects**  

**NOTE:** Options to specific c-Class interconnects are NOT included in the list below. Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.  
**NOTE:** Interconnect Bay 1 must contain one of the Ethernet capable interconnect modules.  
**NOTE:** The HP BladeSystem c-Class interconnects ship as single units unless otherwise noted. Interconnects must be ordered in quantities of two for redundancy support.  
**NOTE:** HP Fibre Channel interconnect switches and modules with 8Gb downlinks (connection speed from the server blades to the interconnect) are supported on c7000 enclosures with the following SKUs: 5XXXXX-B21, 6XXXXX-B21, and 7XXXXX-B21.

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

HP Virtual Connect 8Gb 20-port Fibre Channel Module for c-Class BladeSystem  

HP 4Gb Fibre Channel Pass-thru Module for c-Class BladeSystem  

Brocade 8/12c SAN Switch for BladeSystem c-Class  

Brocade 8/24c SAN Switch for BladeSystem c-Class  

**NOTE:** Options to specific c-Class interconnects are NOT included in the list below. Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.  
**NOTE:** Interconnect Bay 1 must contain one of the Ethernet capable interconnect modules.
Related Options

Brocade 8/24c Power Pack+ SAN Switch for BladeSystem c-Class AJ822B
Cisco MDS 8/12c Fabric Switch for HP BladeSystem c-Class AW563A
Cisco MDS 8/24c Fabric Switch for HP BladeSystem c-Class AW564A
Cisco MDS 9124e Switch for BladeSystem c-Class 12-port Upgrade LTU T5169A
Brocade 16Gb/28 SAN Switch for BladeSystem c-Class C8S46A
Brocade 16Gb/16 SAN Switch for BladeSystem c-Class C8S45A
Brocade 16Gb/28 SAN Switch Power Pack+ for BladeSystem c-Class C8S47A
Brocade 8/16Gb Embedded FC Switch 12-port Upgrade LTU T5517A
HP MDS 8/12c Fabric Switch 12-port Upgrade LTU TA804A

NOTE: Licensed per switch.

HP StoreFabric Data Center Network Manager BladeSystem LTU TC367A
NOTE: Installed on DCNM Server, each license can be assigned to only one switch.

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

HP SAS Switch

NOTE: For detailed interconnect options, consult the specific interconnect QuickSpecs:
NOTE: Options to specific c-Class interconnects are NOT included in the list below.
Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.
NOTE: Interconnect Bay 1 must contain one of the Ethernet capable interconnect modules.

HP BladeSystem InfiniBand Interconnects

NOTE: For detailed interconnect options, consult the specific interconnect QuickSpecs:
NOTE: Options to specific c-Class interconnects are NOT included in the list below.
Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.
NOTE: Interconnect Bay 1 must contain one of the Ethernet capable interconnect modules.

HP Optical Drives

HP Integrity USB External DVD/RW Drive AT120A
## HP Insight Software

### Insight Control

**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:** 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 24x7 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](http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html).

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

**NOTE:** The HP Insight Management Media Kit (C6N31A) 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.

### HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 8 Svr FIO

Electronic License

| C6N32ABE |

### HP Insight Control for BladeSystem including 1yr 24x7 Support Enclosure 16 Svr FIO

Electronic License

| C6N33ABE |

### HP Insight Control Server Provisioning Media Kit

| BD883A |

## HP OneView Software

### HP OneView incl 3yr 24x7 Supp Enclosure Bundle 16 Svr E-LTU

**NOTE:** Server provisioning capability (i.e. 'Insight Control server provisioning') is included and licensed as part of HP OneView. This capability is ideal for multi-server OS and driver provisioning to ProLiant and BladeSystem servers. A media kit (HP Insight Control server provisioning USB media kit (BD883A), which includes a USB flash drive, is available for customers who require a physical copy of the software on media. This media kit is separate and in addition to the HP OneView Media Kit (E5Y37A).

**NOTE:** OneView licenses ship without media. The HP OneView Media Kit can be ordered separately (E5Y37A) or can be downloaded at: [http://www.hp.com/go/oneview](http://www.hp.com/go/oneview).

### HP OneView Media Kit Phys No Lic

| E5Y37A |
### QuickSpecs

#### HP BladeSystem c7000 Enclosure

**Related Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP iLO Advanced for BladeSystem License</td>
<td>HP iLO Advanced for BladeSystem including 1yr 24x7 Support Eight Server License</td>
<td>512489-B21</td>
</tr>
<tr>
<td>HP Virtual Connect Enterprise Manager</td>
<td>HP Virtual Connect Enterprise Manager including 1yr 24x7 Support Single c7000 Enclosure Lic</td>
<td>459864-B21</td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td>This license (459864-B21) allows One 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. <strong>NOTE</strong> For additional license kits, please visit: <a href="http://h18000.www1.hp.com/products/quickspecs/12860_div/12860_div.html">http://h18000.www1.hp.com/products/quickspecs/12860_div/12860_div.html</a> (Worldwide)</td>
<td></td>
</tr>
<tr>
<td>HP c-Class Storage Blades</td>
<td>HP D2200sb PCIe Storage Blade</td>
<td>AP880A</td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td>Please see the HP D2200sb Storage Blade QuickSpecs for technical specifications and additional information at: <a href="http://h18000.www1.hp.com/products/quickspecs/13714_div/13714_div.html">http://h18000.www1.hp.com/products/quickspecs/13714_div/13714_div.html</a></td>
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<tr>
<td>HP D2220sb PCIe and StoreVirtual VSA Bundle</td>
<td>QW914A</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td>Includes the D2220sb Storage Blade and a single HP StoreVirtual VSA license. VSA software is installed in a virtual machine on a VMware ESX/ESXi &amp; Microsoft Hyper-V host server adjacent to the D2220sb. <strong>NOTE</strong> Includes 3yr NBD Parts-Only Warranty Service for D2220sb hardware. <strong>NOTE</strong> Includes 3yr 9x5 remote technical support for HP StoreVirtual VSA software and free updates. <strong>NOTE</strong> HP StoreVirtual VSA is supported on VMware ESX/ESXi &amp; Microsoft Hyper-V.</td>
<td></td>
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<tr>
<td>HP D2220sb PCIe w/(12) 900 GB 6G SAS HDD Bundle</td>
<td>QW915A</td>
<td></td>
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<tr>
<td><strong>NOTE</strong></td>
<td>Includes 3yr NBD Parts-Only Warranty Service for D2220sb hardware</td>
<td></td>
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<tr>
<td>HP D2220sb Build-to-order Storage Blade</td>
<td>QW917A</td>
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<td><strong>NOTE</strong></td>
<td>Includes 3yr NBD Parts-Only Warranty Service</td>
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<tr>
<td>HP D2220sb Configure-to-order Storage Blade</td>
<td>QW918A</td>
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<tr>
<td><strong>NOTE</strong></td>
<td>Includes 3yr NBD Parts-Only Warranty Service</td>
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<tr>
<td><strong>NOTE</strong></td>
<td>The D2220sb requires a c7000 Enclosure configuration with 10 fans. <strong>NOTE</strong> Please see the HP D2220sb Storage Blade QuickSpecs for technical specifications and additional information at: <a href="http://h18000.www1.hp.com/products/quickspecs/14507_div/14507_div.html">http://h18000.www1.hp.com/products/quickspecs/14507_div/14507_div.html</a>.</td>
<td></td>
</tr>
<tr>
<td>HP Bl c-Class PCI Express Mezzanine Pass Thru Option Kit</td>
<td>431643-B21</td>
<td><strong>NOTE</strong> The HP PCI Express Mezzanine Pass-Thru Card (P/N 431643-B21) is required to support an expansion blade with the ProLiant BL620c G7 Server Blade. Up to two expansion blades are supported per server mix and match (Ultrium Tape, D2220sb/D2220sb PCIe Storage, and/or PCI Expansion Blades). See the Expansion blade section later in this document for more information.</td>
</tr>
<tr>
<td>HP StoreEasy 3840 Gateway Storage Blade</td>
<td>E7X08A</td>
<td></td>
</tr>
</tbody>
</table>

---

**NOTE:**

The HP StoreEasy 3840 Gateway Storage Blade is intended for use in HP BladeSystem c7000 enclosures, providing storage expansion options for the blade servers. This blade supports various storage configurations, including Ultrium tape and SAS disk drives, allowing for increased data capacity and redundancy. It is designed to integrate seamlessly with the HP BladeSystem architecture, offering enhanced data management capabilities and improved system scalability.

**NOTE:**

When configuring a storage solution for your HP BladeSystem c7000, it is important to consider the specific requirements of your environment, such as data throughput, storage capacity, and redundancy levels. The HP StoreEasy 3840 Gateway Storage Blade offers a scalable solution that can be tailored to meet the needs of various deployment scenarios, from small data centers to large-scale enterprises. By leveraging the advanced features and technologies available in the HP BladeSystem, organizations can optimize their storage infrastructure, ensuring efficient data management and enhanced system performance.
Related Options

**HP Expansion Blades**

HP BLc PCI Expansion Blade

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

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

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

**HP Ultrium Tape Blades**

HP StoreEver LTO-5 Ultrium SB3000c Tape Blade

HP StoreEver LTO-4 Ultrium SB1760c Tape Blade

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

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

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

**HP Power Cords**

*NOTE:* For power cable information, please visit:

**HP Intelligent Power Distribution Units Power cords**

*NOTE:* Order with HP Single Phase FIO Intelligent Power Module for c-Class BladeSystem (677595-B21). These power cables enable Power Discovery Services communications between the HP BladeSystem c7000 Enclosure and HP Intelligent PDUs.

*NOTE:* These power cables are designated by bright blue IEC connectors.

HP 1.37m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord

HP 2.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord

HP 3.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord

**HP C19 - C20 Jumper Cords**

HP C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord

HP C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord

HP C19 - C20 WW 250V 16Amp 2.5m Jumper Cord

HP C19 - C20 WW 250V 16Amp 4.5m Jumper Cord

**HP HV Power Cords 200 - 240V AC**

HP C19 - Nema L6-30P US/CA 250V 16Amp 4.5m Power Cord

HP C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord

HP C19 - NBR-14136 BR 250V 16Amp 2.5m Power Cord

HP C19 - BS-1363/A UK/HK/SG 250V 13Amp 3.6m Power Cord

HP C19 - CEE-VII EU 250V 16Amp 3.6m Power Cord

HP C19 - AS3112-3 AU/NZ 250V 15Amp 3.6m Power Cord
### HP Uninterruptible Power Systems (UPSs)

**NOTE:** Additional HP Uninterruptible Power Systems (UPSs) are available than those listed here. For a complete list of all HP UPSs and additional information, please visit [http://www.hp.com/go/rackandpower](http://www.hp.com/go/rackandpower).

#### R5000 Uninterruptible Power System (UPS)
- HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System: AF460A
- HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System: AF461A

#### R7000 Uninterruptible Power System (UPS)
- HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System: AF462A
- HP R7KVA 4U IEC-32A High Voltage INTL Uninterruptible Power System: AF463A
- HP R5KVA and R7KVA 3U Extended Runtime Module: AF464A

#### HP R8000/3 Uninterruptible Power System (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 Uninterruptible Power System (UPS)
- 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

#### HP Parallel 3 Phase Uninterruptible Power Systems (UPS RP36000/3)
- HP RP36000/3 36000kVA Three Phase NA Uninterruptible Power System: AF438A
- HP RP36000/3 36000kVA Three Phase INTL Uninterruptible Power System: AF439A

#### Expansion modules for RP36000/3 UPS
- HP RP12000/3 12000VA Three Phase NA 6U Rackmount Uninterruptible Power System: AF436A
- HP RP12000/3 12000VA Three Phase INTL 6U Rackmount Uninterruptible Power System: AF437A
NOTE: A pair of PDUs must be ordered for AC feed redundancy.

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

### HP Basic Power Distribution Units (bPDUs)

- HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU H5M59A
- HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU H5M70A
- HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU H5M62A
- HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU H5M64A
- HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU H5M72A

### HP Modular Power Distribution Units (PDU Cores)

NOTE: Modular PDU Cores do not include extension bars.

- HP 4.9kVA 24A High Voltage NA/JP Core Modular Power Distribution Unit 252663-D74.
- HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit 252663-D75
- HP 8.6kVA 24A Three Phase NA/JP Modular Power Distribution Unit AF512A
- HP 14.4kVA 40A Three Phase NA/JP Modular Power Distribution Unit AF519A
- HP 17.3kVA 48A Three Phase NA/JP Modular Power Distribution Unit AF511A
- 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 11kVA 16A Three Phase INTL Modular Power Distribution Unit AF513A
- HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit AF518A

### HP Remote Monitoring Power Distribution Units (mPDUs)

- HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU D9N47A
- HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU D9N48A
- HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU D9N50A
- HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU D9N51A
- HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU D9N53A
- HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU D9N57A
- HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU D9N54A
- HP Environmental Sensor for Remote Monitored PDUs E2D53A

NOTE: The HP Environmental Sensor collects temperature and humidity information in the rack and can be monitored via the local LCD display or remotely using Telnet or a standard web interface. The sensor can also monitor the status of two user supplied contact devices.

### HP Intelligent Power Distribution Units (iPDUs)

- HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit AF520A
- HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit AF525A
- HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit AF522A
- HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit AF526A
- HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit AF523A
- HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit AF527A
HP Data Center Racks

**NOTE:** Additional HP Data Center racks are available than those listed below. For information on the full line of HP Data Center Racks and rack accessories, please see http://www.hp.com/go/rackandpower.

### HP 11000 G2 Series Racks
- HP 11642 1075mm Pallet Universal Rack
  - H6J65A
- HP 11642 1200mm Pallet Universal Rack
  - H6J67A
- HP 11842 1200mm Pallet Universal Rack
  - H6J69A
- HP 11648 1075mm Pallet Universal Rack
  - H6J87A
- HP 11636 1075mm Pallet Universal Rack
  - H6J77A
- HP 11622 G2 1075mm Pallet Universal Rack
  - H6J83A

### HP Intelligent Series Rack
- HP 636 1075mm Pallet Intelligent Series Rack
  - BW895A
- HP 642 1075mm Pallet Intelligent Series Rack
  - BW903A
- HP 647 1075mm Pallet Intelligent Series Rack
  - BW911A

### HP Location Discovery Services

**NOTE:** For information on HP Location Discovery Services, please see http://www.hp.com/go/rackandpower.

- HP 47U Location Discovery Kit
  - BW947A
- HP 42U Location Discovery Kit
  - BW946A
- HP 36U Location Discovery Kit
  - BW945A

### HP Tape Backup

**NOTE:** For the complete range of tape drives, autoloaders, libraries and media see http://www.hp.com/go/tape. For hardware and software compatibility of HP tape backup products see http://www.hp.com/storage/SPOCK.

- HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit
  - C0L99A
- HP StoreEver LTO-6 Ultrium 6650 SAS Internal Tape Drive
  - EH963A
- HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive
  - EH964A
- HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive
  - EH969A
- HP StoreEver LTO-6 Ultrium 6250 External Tape Drive
  - EH970A

### HP Rack Options

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

### HP TFT7600 G2 KVM Console and Monitor

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

- HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor
  - AZ870A
- HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor
  - AZ871A
- HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor
  - AZ872A
- HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor
  - AZ873A
- HP TFT7600 G2 KVM Console Rackmount Keyboard IT Monitor
  - AZ874A
- HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor
  - AZ875A
- HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor
  - AZ876A
- HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor
  - AZ877A
- HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor
  - AZ878A
- HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor
  - AZ879A
- HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor
  - AZ880A
- HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor
  - AZ881A
HP 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.

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

Proactive Care Services

HP 3 year 4 hour 24x7 c7000 Enclosure Proactive Care Service
HP 3 year 6 hour Call To Repair 24x7 c7000 Enclosure Proactive Care Service
HP 3 year 4 hour 24x7 c7000 Enclosure with Insight Control Proactive Care Service
HP 3 year 6 hour Call To Repair 24x7 c7000 Enclosure with Insight Control Proactive Care Service

HP Proactive Care Personalized Support - Environmental Option

HP 3 year ISS ProactiveCare Personalized Support

Installation & Start-up Services

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

HP Flexible Care Pack Services for your Integrity BladeSystem Enclosure

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

Mission Critical Services

Proactive 24 Service - Mission Critical proactive environment 24x7 4hr onsite HW support

Critical Service - Mission Critical proactive environment 6-Hour Call-to-Repair onsite HW support

Installation & Start-up Services
## Related Options

<table>
<thead>
<tr>
<th>Service</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP BladeSystem c7000 Infrastructure Installation and Startup Service for Blade Hardware and Insight Control Software</td>
<td>HA114A1#57A</td>
</tr>
<tr>
<td>HP Enhanced Network Installation and Startup Service for HP BladeSystem</td>
<td>HA124A1#56H</td>
</tr>
</tbody>
</table>
NOTE: HP highly recommends using the HP Power Advisor tool to ensure the number of power supply options you have selected can fully support your BladeSystem configuration and to review maximum system power ratings for facilities planning purposes. HP Power Advisor is available at: http://www.hp.com/go/hppoweradvisor.

### Power Input Module Specifications

<table>
<thead>
<tr>
<th>Power Input Module1</th>
<th>Power Connection</th>
<th>HP Power Discovery Services</th>
<th>Rated Input Voltage</th>
<th>Input Frequency</th>
<th>Supported Power Supply Kits7</th>
<th>Supported c7000 Enclosures11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single Phase AC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intelligent (677595-B21)</td>
<td>6x IEC-320 C20 blue power connectors2,3,4</td>
<td>Supported3</td>
<td>200-240 VAC</td>
<td>50-60 Hz</td>
<td>2650W Platinum9,10a</td>
<td>4XXXXX-B21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2400W Platinum8,9,10b</td>
<td>4XXXXX-B22</td>
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<td>2400W Gold8,9,10c</td>
<td>4XXXXX-B23</td>
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<td></td>
<td>2250W9,10d</td>
<td>5XXXXX-B21</td>
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<td></td>
<td></td>
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<td>6XXXXX-B21</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>7XXXXX-B21</td>
</tr>
<tr>
<td><strong>Single Phase AC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(413379-B21)</td>
<td>6x IEC-320 C20 power connectors5</td>
<td>Not supported</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Three Phase AC NA/JPN</strong> (413380-B21)9</td>
<td>Two 3.05m (10 ft) power cables with NEMA L15-30p connectors</td>
<td>200-208 VAC line to line, 3-phase delta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Three Phase AC International</strong> (413381-B21)9</td>
<td>Two 3.05m (10 ft) power cables with IEC-309 220/380 V - 240/415 V, 5-Pin, 6h, 16A connectors</td>
<td>380-415 VAC line to line, 220-240 VAC line to neutral, 3-Phase WYE6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>-48V DC</strong> (AH331A)</td>
<td>45DG 4AWG 1/4 2H terminal lugs</td>
<td>40-60 VDC N/A</td>
<td>2250W -48VDC (AH332A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High Voltage</strong> (753623-B21)</td>
<td>6x APP Saf-D-Grid receptacle connectors12</td>
<td>277 VAC, 380 VDC (AC), N/A (DC)</td>
<td>2650W Universal (753618-B21 and 753619-B21)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. See the Technical Specifications section for additional power specifications. The blue power connectors indicate HP Power Discovery Services capability. HP Power Discovery Services are enabled when used with an Intelligent Power Distribution Unit (iPDU), iPDU cables, and the Platinum power supply kits 733460-B21, 733459-B21, 517521-B21, or 588603-B21. See the iPDU, iPDU cable, and c-Class Power Supply sections for these options. Accept IEC C19-C20 and C19-C20 Intelligent Power Distribution Unit (iPDU) power cables. One WW 250W C19-C20 2.0m (non-iPDU) power cable is included per supported power supply. iPDU power cables are ordered separately. Accept IEC C19-C20 power cables. One WW 250W C19-C20 2.0m power cable is included per supported power supply. Rated 220 to 240 VAC line-to-neutral. The enclosure will not operate from higher line-to-line voltage with the WYE wall plug configuration. This power input module is configured to provide 220 to 240 VAC to the power supplies. Each enclosure must include only one type of power supply. Mixing of power supplies is not supported, except during hot swaps to different level or higher efficient power supplies. The Onboard Administrator will exhibit a mismatch error due to mixed power supplies until all power supplies are matched. The three-phase power input modules (413380-B21 and 413381-B21) require a minimum of 6 fans and 3 power supplies. For full redundancy, 6 power supplies are required. Supported HP power supply kits include: 2650W Platinum: 733460-B21 (6-pack) and 733459-B21 (single). 2400W Platinum: 517521-B22 (6-pack) and 588603-B21 (single). 2400W Gold: 517521-B21 (6-pack) and 499243-B21 (single). 2250W: 517521-B21 (6-pack) and 499243-B21 (single). The Onboard Administrator firmware must be at least the minimum version that supports all components installed within the enclosure. Power cables with APP Saf-D-Grid connectors are ordered separately.

**Power Supply Specifications**
## Power Supply Specifications

### HP 2650 Watt Platinum Hot Plug Power Supply

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>733459-B21 (single), 733460-B21 (6-pack)</td>
</tr>
<tr>
<td>Input Voltage Range (Vrms)</td>
<td>200-240</td>
</tr>
<tr>
<td>Frequency Range (Nominal) (Hz)</td>
<td>50 / 60</td>
</tr>
<tr>
<td>Nominal Input Voltage (Vrms)</td>
<td>200, 208, 220, 230, 240</td>
</tr>
<tr>
<td>Maximum Rated Output Wattage</td>
<td>2650</td>
</tr>
<tr>
<td>Nominal Input Current (A rms)</td>
<td>14.5, 13.9, 13.1, 12.5, 12.0</td>
</tr>
<tr>
<td>Maximum Rated Input Wattage Rating (Watts)</td>
<td>2898, 2901, 2904, 2887, 2884</td>
</tr>
<tr>
<td>Maximum Rated VA (Volt-Amp)</td>
<td>2896, 2888, 2887, 2882, 2878</td>
</tr>
<tr>
<td>Efficiency (%) at Maximum Rated Output Wattage</td>
<td>91.2, 91.3, 91.4, 91.8, 91.9</td>
</tr>
<tr>
<td>Power Factor</td>
<td>0.98</td>
</tr>
<tr>
<td>Leakage Current (mA)</td>
<td>0.97, 1.01, 1.06, 1.11, 1.16</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>9888, 9899, 9910, 9850, 9840</td>
</tr>
</tbody>
</table>

### HP 2400 Watt Platinum Hot Plug Power Supply

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>588603-B21 (single), 517521-B22 (6-pack)</td>
</tr>
<tr>
<td>Input Voltage Range (Vrms)</td>
<td>200-240</td>
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<tr>
<td>Frequency Range (Nominal) (Hz)</td>
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</tr>
<tr>
<td>Nominal Input Voltage (Vrms)</td>
<td>200, 208, 220, 230, 240</td>
</tr>
<tr>
<td>Maximum Rated Output Wattage</td>
<td>2450</td>
</tr>
<tr>
<td>Nominal Input Current (A rms)</td>
<td>13.9, 13.4, 12.6, 12.0, 11.4</td>
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<tr>
<td>Maximum Rated Input Wattage Rating (Watts)</td>
<td>2692, 2692, 2678, 2678, 2663</td>
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<tr>
<td>Maximum Rated VA (Volt-Amp)</td>
<td>2778, 2778, 2762, 2762, 2747</td>
</tr>
<tr>
<td>Efficiency (%) at Maximum Rated Output Wattage</td>
<td>91, 91, 91.5, 91.5, 92</td>
</tr>
<tr>
<td>Power Factor</td>
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</tr>
<tr>
<td>Leakage Current (mA)</td>
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</tr>
<tr>
<td>Maximum Inrush Current (A peak)</td>
<td>100</td>
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<tr>
<td>Maximum Inrush Current duration (mS)</td>
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<tr>
<td>Maximum British Thermal Unit Rating (BTU-Hr)</td>
<td>9186, 9186, 9136, 9136, 9086</td>
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### HP 2400 Watt Gold Hot Plug Power Supply

<table>
<thead>
<tr>
<th>Specification</th>
<th>Single</th>
<th>6-pack</th>
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<tbody>
<tr>
<td>Part Number</td>
<td>499243-B21</td>
<td>517521-B21</td>
</tr>
<tr>
<td>Input Voltage Range (Vrms)</td>
<td>200-240</td>
<td></td>
</tr>
<tr>
<td>Frequency Range (Nominal) (Hz)</td>
<td>50 / 60</td>
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<tr>
<td>Nominal Input Voltage (Vrms)</td>
<td>200</td>
<td>208</td>
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<tr>
<td>Maximum Rated Output Wattage</td>
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<tr>
<td>Nominal Input Current (Arms)</td>
<td>14.15</td>
<td>13.58</td>
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<tr>
<td>Maximum Rated Input Wattage Rating (Watts)</td>
<td>2742</td>
<td>2737</td>
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<tr>
<td>Maximum Rated VA (Volt-Amp)</td>
<td>2830</td>
<td>2825</td>
</tr>
<tr>
<td>Efficiency (%) at Maximum Rated Output Wattage</td>
<td>87.5</td>
<td>87.7</td>
</tr>
<tr>
<td>Power Factor</td>
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</tr>
<tr>
<td>Leakage Current (mA)</td>
<td>0.97</td>
<td>1.01</td>
</tr>
<tr>
<td>Maximum Inrush Current (A peak)</td>
<td>100</td>
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</tr>
<tr>
<td>Maximum Inrush Current duration (mS)</td>
<td>5</td>
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</tr>
<tr>
<td>Maximum British Thermal Unit Rating (BTU-Hr)</td>
<td>9356</td>
<td>9338</td>
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### HP 2250 Watt -48VDC Hot Plug Power Supply

<table>
<thead>
<tr>
<th>Specification</th>
<th>Single</th>
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<tbody>
<tr>
<td>Part Number</td>
<td>AH332A</td>
</tr>
<tr>
<td>Input Voltage Range (V DC)</td>
<td>40-60</td>
</tr>
<tr>
<td>Frequency Range (Nominal) (Hz)</td>
<td>N/A</td>
</tr>
<tr>
<td>Nominal Input Voltage (Vrms)</td>
<td>48</td>
</tr>
<tr>
<td>Maximum Rated Output Wattage (Watts)</td>
<td>2250</td>
</tr>
<tr>
<td>Nominal Input Current (Arms)</td>
<td>53.15</td>
</tr>
<tr>
<td>Maximum Rated Input Wattage (Watts)</td>
<td>2523</td>
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<tr>
<td>Maximum Rated VA (Volt-Amp)</td>
<td>2523</td>
</tr>
<tr>
<td>Efficiency (%) at Maximum Rated Output Wattage</td>
<td>89.2</td>
</tr>
<tr>
<td>Power Factor (Minimum)</td>
<td>1.00</td>
</tr>
<tr>
<td>Leakage Current (mA)</td>
<td>N/A</td>
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<tr>
<td>Maximum Inrush Current (A peak)</td>
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</tr>
<tr>
<td>Maximum Inrush Current duration (mS)</td>
<td>5</td>
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<tr>
<td>Maximum British Thermal Unit Rating (BTU/Hr)</td>
<td>8607</td>
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# HP 2650 Watt Universal Hot Plug Power Supply

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td><strong>Part Number</strong></td>
<td>753618-B21 (single), 753619-B21 (6-pack)</td>
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<tr>
<td><strong>Input Voltage Range (V DC)</strong></td>
<td>277 VAC, 380 VDC</td>
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<tr>
<td><strong>Frequency Range (Nominal) (Hz)</strong></td>
<td>50 / 60 (AC), N/A (DC)</td>
</tr>
<tr>
<td><strong>Nominal Input Voltage (Vrms)</strong></td>
<td>277 VAC, 380 VDC</td>
</tr>
<tr>
<td><strong>Maximum Rated Output Wattage (Watts)</strong></td>
<td>2650</td>
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<tr>
<td><strong>Nominal Input Current (Arms)</strong></td>
<td>10.40, 7.51</td>
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<tr>
<td><strong>Maximum Rated Input Wattage (Watts)</strong></td>
<td>2868, 2853</td>
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<tr>
<td><strong>Maximum Rated VA (Volt-Amp)</strong></td>
<td>2881, 2853</td>
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<td><strong>Efficiency (%) at Maximum Rated Output Wattage</strong></td>
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<td><strong>Power Factor (Minimum)</strong></td>
<td>0.996 (AC), 1.000 (DC)</td>
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<tr>
<td><strong>Maximum Inrush Current (A peak)</strong></td>
<td>100</td>
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<tr>
<td><strong>Maximum Inrush Current duration (mS)</strong></td>
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<tr>
<td><strong>Maximum British Thermal Unit Rating (BTU/Hr)</strong></td>
<td>9785, 9735</td>
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</table>
### Fan Bay and Device Bay Numbering and Population Guidelines

#### Fan Bay Numbering

<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>

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

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

The following device bays are located in each zone:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Half-Height Device Bays</th>
<th>Full-Height Device Bays</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Device Bay 1</td>
<td>5. Device Bay 5</td>
<td>1. Device Bay 1</td>
</tr>
<tr>
<td>3. Device Bay 3</td>
<td>7. Device Bay 7</td>
<td>3. Device Bay 3</td>
</tr>
</tbody>
</table>
Expansion blades

Expansion blades consist of storage blades, tape blades, and the PCI Expansion Blade. Up to 8 expansion blades are supported per HP BladeSystem c-Class c7000 Enclosure. Expansion blades may be installed in the same zone as half-height and full-height, single-wide server blades. Expansion blades are not supported with full-height, double-wide server blades. An expansion blade is installed directly adjacent to a server blade, also known as a partner server blade. Expansion blade population rule best practices are detailed below. For additional expansion blade rules and guidelines, please see the documentation that ships with the enclosure and expansion blade. HP recommends consulting your HP sales representative to confirm the validity of any configuration.

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

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

Expansion blade population best practices for half-height server blades

1. One half-height partner server blade supports one expansion blade (Figure 1).
2. Identify the partner server blade to be installed with the expansion blade. The two blades always occupy a pair of slots as follows: 1 & 2, 3 & 4, 5 & 6, 7 & 8, 9 & 10, 11 & 12, 13 & 14, 15 & 16.
3. If the partner server blade is installed in an odd-numbered bay, the expansion blade is installed in the adjacent even-numbered bay to the right.
4. If the partner server blade is installed in an even-numbered bay, the expansion blade is installed in the adjacent odd-numbered bay to the left.
5. Each c7000 zone contains a removable divider that is used to support half-height devices. This divider is remains installed whether the half-height devices are server or expansion blades.

Expansion blade population best practices for full-height, single-wide server blades

1. One full-height, single-wide partner server blade supports one or two expansion blades. Figure 2 shows installation of one expansion blade.
2. Identify the partner server blade to be installed with the first expansion blade. The two blades always occupy a pair of slots as follows: 9 & 10, 11 & 12, 13 & 14, 15 & 16.
3. The partner server blade is installed in an odd-numbered bay. The first expansion blade is installed on the lower row of the enclosure in an even-numbered bay (slots 10, 12, 14 or 16) adjacent to the partner server blade.
4. If only a single expansion blade is installed:
   a. 

---

<table>
<thead>
<tr>
<th>Fan Bay and Device Bay Numbering and Population Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>
Fan Bay and Device Bay Numbering and Population Guidelines

1. A half-height server blade may be installed in the empty bay directly above the expansion blade. This server blade cannot be partnered with the expansion blade. A coupler bracket is installed on the expansion blade. A coupler bracket is not installed on the server blade. A coupler bracket is included with each expansion blade.

2. If no device is desired in the empty bay above the expansion blade, a device bay blank is installed.

3. The upper half-height server blade or device bay blank must be removed before removing the lower expansion blade.

4. If a second expansion blade is installed:
   a. It is always located directly above the first installed expansion blade. A coupler bracket is installed on the lower expansion blade. A coupler bracket is not installed on the upper expansion blade. A coupler bracket is included with each expansion blade.
   b. Two storage blades, two tape blades, two PCI Expansion Blades, or a mixture of any two. For a mixed configuration that contains a storage blade, the storage blade is installed on the bottom bay and the tape blade or PCI Expansion Blade is installed on the top bay.
   c. The upper expansion blade must be removed before removing the lower expansion blade.

5. When partnering an expansion blade with a ProLiant BL620c G7 Server Blade, an HP PCI Express Mezzanine Pass-Thru Card for BladeSystem c-Class (431643-B21) is required. This card is installed in the mezzanine 3 connector in the server blade for a lower bays expansion blade installation and a second card in installed in mezzanine 2 connector if a second expansion blade is required.

6. The HP ProLiant BL680c G7 Server Blade is a full-height, double-wide device. It does not support expansion blades.

Device bay and fan population guidelines

The device bay and fan bay population rule best practices are detailed below. HP recommends consulting your HP sales representative to confirm the validity of any configuration.

1. Half-height devices are populated from top and bottom from left to right from the front of the enclosure. So the first two half-height devices would be placed in bays 1 & 9, the second two half-height devices would be placed in bays 2 & 10, and so on until the enclosure is full. Please refer to the above section for additional information.

2. Full-height servers are populated from left to right. Please see the above section for additional information.

3. An enclosure zone can only contain either full-height server blades or half-height server blades mixing of the two form factors is not allowed except when connecting an expansion blade to a server partner blade. Please refer to the above sections for more information.

4. The type and number of installed blade devices and interconnect modules determine the number of required fans.

5. The enclosure supports a minimum of 4 Active Cool 200 Fans to a maximum of 10 Active Cool 200 Fans. Ten fans are strongly recommended for maximum cooling efficiency and redundancy, reduced power consumption, and reduced noise.

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

7. A minimum of 4 fans are required for a configuration that occupies 2 half-height device bays. Examples include up to 2 half-height, single-wide server blades, 1 half-height, double-wide server blade, 1 full-height, single-wide server blade, or 1 half-height, single-wide server blade and 1 expansion blade. The blades are installed in zone 1 (device bays 1, 9, 2, and/or 10). The fans are installed in fan bays 4, 5, 9, and 10.

8. A minimum of 6 fans are required for a configuration that occupies up to 8 half-height device bays. Examples include up to 8 half-height, single-wide server blades, 4 half-height, double-wide server blades, or 2 full-height, double-wide server blades. The blades are installed in zones 1 and 2 (device bays 1, 9, 2, 10, 3, 11, 4, and/or 12). The fans are installed in fan bays 3, 4, 5, 8, 9, and 10.

9. A minimum of 8 fans are required for a configuration that occupies at least 9 half-height device bays. The blades can be installed in any device bays. The fans are installed in fan bays 1, 2, 4, 5, 6, 7, 9, and 10.

10. Ten fans support all device bays. The blades can be installed in any device bays. The fans are installed in all fan bays.

11. Device bay blanks and fan bay blanks are installed in all unoccupied bays.

12. In addition to the above, please observe the following:
   a. A minimum of 6 fans are required for any enclosure configured with a three-phase power input module. The fans are installed in fan bays 3, 4, 5, 8, 9, and 10.
   b. A minimum of 8 fans are required if at least one switch module is installed in interconnect bay 1, 3, 5, or 7 and at least one switch module is installed in interconnect bay 2, 4, 6, or 8. This does not apply to pass-thru modules. The fans are installed in fan bays 1, 2, 4, 5, 6, 7, 9, and 10.
   c. Ten fans are required for a configuration with:
      i. One or more HP Virtual Connect FlexFabric-20/40 F8 Modules.
      ii. One or more D2220sb Storage Blades.
Fan Bay and Device Bay Numbering and Population Guidelines

iii. More than half of the enclosure device bays are occupied and any quantity of D2200sb Storage Blades are present.

iv. Nine or more BL460c G1 and/or BL460c G5 Server Blades.
HP BladeSystem c7000 Server Blade Enclosure

Dimensions

<table>
<thead>
<tr>
<th>Component</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
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<td>in (mm)</td>
<td>17.4 (442)</td>
</tr>
<tr>
<td>Width</td>
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<td>Depth</td>
<td>in (mm)</td>
<td>32 (813)</td>
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Shipping Dimensions

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<tr>
<td>Width</td>
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Enclosure Weight

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<td>Unboxed</td>
<td>lb (kg)</td>
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</tr>
<tr>
<td>Shipping</td>
<td>lb (kg)</td>
<td>191 (87)</td>
</tr>
</tbody>
</table>

NOTE: The enclosure weight above includes only an empty enclosure—servers, the power input module, power supplies, fans, interconnect modules, and Onboard Administrator(s) are not included. The weight for the power input module, power supplies, fans, and Onboard Administrator(s) is listed below. Please see the specific server blade and interconnect module QuickSpecs for their respective weight.

Power Input Module Weight

- (minimum 1, maximum 1) 3 lbs (1.4 kg)
- (minimum 1, maximum 6) 6 lbs (2.7 kg)
- (minimum 4, maximum 10) 4 lbs (1.8 kg)

Onboard Administrator Weight

- (minimum 1, maximum 2) 3 lbs (1.4 kg)

Maximum Enclosure Weight

<table>
<thead>
<tr>
<th>Component</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unboxed</td>
<td>lb (kg)</td>
<td>482 (219)</td>
</tr>
<tr>
<td>Shipping</td>
<td>lb (kg)</td>
<td>525 (238)</td>
</tr>
</tbody>
</table>

NOTE: The approximate maximum enclosure weight above includes 16 server blades fully configured, the power input module, six power supplies, ten fans, eight interconnect modules, and two Onboard Administrators.

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.

NOTE: For detailed environmental and other installation requirements, please see the HP BladeSystem c-Class Site Planning Guide at http://www.hp.com/support.

Power

NOTE: HP highly recommends using the HP Power Advisor tool to ensure the number of power supply options you have selected can fully support your BladeSystem configuration and to review maximum system power ratings for facilities planning purposes. HP Power Advisor is available at http://www.hp.com/go/poweradvisor.
### Technical Specifications

| **Single Phase AC Power Input Module**<br>(413379-B21) | **Power connection**<br>677595-B21: 6x IEC-320 C20 blue power connectors<br>413379-B21: 6x IEC-320 C20 power connectors | **NOTE**: The blue power connectors indicate HP Power Discovery Services capability. HP Power Discovery Services are enabled when used with an Intelligent Power Distribution Unit (iPDU), iPDU cables, and a Platinum power supply kit.<br><br>**NOTE**: One WW 250W C19-C20 2.0m power cable is included per power supply. iPDU power cables are ordered separately. |
| **Single Phase AC Intelligent Power Input Module**<br>(677595-B21) | **Rated input voltage**<br>200 to 220 VAC | **Rated input frequency**<br>50 to 60 Hz |
| **Number of power supplies supported** | **Minimum**: One (1)<br>**Maximum**: Six (6) | **Power connection**<br>413138-B21: 6x IEC-320 C20 power connectors |
| **2250W Power Supply**<br>(412138-B21) | **Maximum output (per power supply)**<br>2250W | **Maximum output (total for six power supplies)**<br>13,050W |
| | **Maximum input current (per power supply)**<br>13.1 A at 200 VAC<br>12.6 A at 208 VAC<br>11.9 A at 220 VAC | **Maximum input current (per power supply)**<br>2621 VA |
| **2400W Gold Power Supply**<br>(517521-B21, 6-pack)<br>(499243-B21, single) | **Maximum output (per power supply)**<br>2450W | **Maximum output (total for six power supplies)**<br>14,210W |
| | **Maximum input current (per power supply)**<br>13.9 A at 200 VAC<br>13.3 A at 208 VAC<br>12.6 A at 220 VAC | **Maximum input current (per power supply)**<br>2780 VA |
| **2400W Platinum Power Supply**<br>(517522-B22, 6-pack)<br>(588603-B21, single) | **Maximum output (per power supply)**<br>2450W | **Maximum output (total for six power supplies)**<br>14,210W |
| | **Maximum input current (per power supply)**<br>13.2 A at 200 VAC<br>12.7 A at 208 VAC<br>12.2 A at 220 VAC | **Maximum input current (per power supply)**<br>2640 VA |
| **2650W Platinum Power Supply**<br>(733460-B21, 6-pack)<br>(733459-B21, single) | **Maximum output (per power supply)**<br>2650W | **Maximum output (total for six power supplies)**<br>15,370W |
| | **Maximum input current (per power supply)**<br>14.4 A at 200 VAC<br>13.8 A at 208 VAC<br>13.1 A at 220 VAC | **Maximum input current (per power supply)**<br>2880 VA |

<p>| <strong>Three Phase AC NA/JPN Power Input Module</strong> | <strong>Power connection</strong>&lt;br&gt;Two 3.05m (10 ft) power cables with NEMA L15-30p connectors |</p>
<table>
<thead>
<tr>
<th>Power Input Module</th>
<th>Rated input voltage</th>
<th>200 to 208 VAC line to line 3-phase delta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rated input frequency</td>
<td>50 to 60 Hz</td>
</tr>
<tr>
<td></td>
<td>Number of power supplies supported</td>
<td>Minimum: Three (3) Maximum: Six (6)</td>
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<tr>
<td>2250W Power Supply (412138-B21)</td>
<td>Maximum output (per power supply)</td>
<td>2250W</td>
</tr>
<tr>
<td></td>
<td>Maximum output (total for six power supplies)</td>
<td>13,050W</td>
</tr>
<tr>
<td></td>
<td>Maximum input current per line cord</td>
<td>22.8 A at 200 VAC 21.8 A at 208 VAC</td>
</tr>
<tr>
<td></td>
<td>Maximum input power per line cord</td>
<td>7863 VA</td>
</tr>
<tr>
<td>2400W Gold Power Supply (517521-B21, 6-pack) (499243-B21, single)</td>
<td>Maximum output (per power supply)</td>
<td>2450W</td>
</tr>
<tr>
<td></td>
<td>Maximum output (total for six power supplies)</td>
<td>14,210W</td>
</tr>
<tr>
<td></td>
<td>Maximum input current per line cord</td>
<td>24.2 A at 200 VAC 23.2 A at 208 VAC</td>
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<tr>
<td></td>
<td>Maximum input power per line cord</td>
<td>8352 VA</td>
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<tr>
<td>2400W Platinum Power Supply (517521-B22, 6-pack) (588603-B21, single)</td>
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<td></td>
<td>Maximum output (total for six power supplies)</td>
<td>14,210W</td>
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<tr>
<td></td>
<td>Maximum input current per line cord</td>
<td>22.9 A at 200 VAC 22 A at 208 VAC</td>
</tr>
<tr>
<td></td>
<td>Maximum input power per line cord</td>
<td>7920 VA</td>
</tr>
<tr>
<td>2650W Platinum Power Supply (733460-B21, 6-pack) (733459-B21, single)</td>
<td>Maximum output (per power supply)</td>
<td>2650W</td>
</tr>
<tr>
<td></td>
<td>Maximum output (total for six power supplies)</td>
<td>15,370W</td>
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<tr>
<td></td>
<td>Maximum input current per line cord</td>
<td>25 A at 200 VAC 24 A at 208 VAC</td>
</tr>
<tr>
<td></td>
<td>Maximum input power per line cord</td>
<td>8640 VA</td>
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### Three Phase AC International Power Input Module

<table>
<thead>
<tr>
<th>Power Input Module</th>
<th>Power connection</th>
<th>Two 3.05m (10 ft) power cables with IEC-309 220/380 V - 240/415 V, 5-Pin, 6h, 16A connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rated input voltage</td>
<td>380 to 415 VAC line to line 220 to 240 VAC line to neutral 3-Phase WYE</td>
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<tr>
<td></td>
<td>Rated input frequency</td>
<td>50 to 60 Hz</td>
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<tr>
<td></td>
<td>Number of power supplies supported</td>
<td>Minimum: Three (3) Maximum: Six (6)</td>
</tr>
<tr>
<td>2250W Power Supply</td>
<td>Maximum output (per power supply)</td>
<td>2250W</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>2400W Gold Power Supply (517521-B21, 6-pack) (499243-B21, single)</td>
<td>2450W</td>
<td>14,210W</td>
</tr>
<tr>
<td>2400W Platinum Power Supply (517521-B22, 6-pack) (588603-B21, single)</td>
<td>2450W</td>
<td>14,700W</td>
</tr>
<tr>
<td>2650W Platinum Power Supply (733460-B21, 6-pack) (733459-B21, single)</td>
<td>2650W</td>
<td>15,370W</td>
</tr>
<tr>
<td>-48VDC Power Input Module (AH331A)</td>
<td>Power connection: 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</td>
<td>Rated input voltage: 40 to 60 VDC</td>
</tr>
<tr>
<td>2250W -48VDC Power Supply (AH332A)</td>
<td>Maximum output (per power supply): 2250W</td>
<td>Maximum output (total for six power supplies): 13,050W</td>
</tr>
</tbody>
</table>
| High Voltage Power Input Module (753623-B21) | Power connection: 6x APP Saf-D-Grid receptacle connectors | Rated input voltage: 277 VAC, 380 VDC | **NOTE:** Power cables with APP Saf-D-Grid connectors are ordered separately.
#### Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Rated input frequency</td>
<td>50 to 60 Hz (AC), N/A (DC)</td>
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<tr>
<td>Number of power supplies supported</td>
<td>Minimum: One (1)</td>
</tr>
<tr>
<td></td>
<td>Maximum: Six (6)</td>
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<tr>
<td>2650W Universal Power Supply</td>
<td>Maximum output (per power supply) 2650W</td>
</tr>
<tr>
<td>(753619-B21, 6-pack)</td>
<td>Maximum output (total for six power supplies)</td>
</tr>
<tr>
<td>(753618-B21, single)</td>
<td>Maximum input current (per power supply)</td>
</tr>
<tr>
<td></td>
<td>10.5 A at 277 VAC</td>
</tr>
<tr>
<td></td>
<td>7.6 A at 380 VDC</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).

- **Idle**
  - LWAd: 7.1 Bels
  - LpAm: 54 dBA

- **Operating**
  - LWAd: 7.2 Bels
  - LpAm: 54 dBA

**Option Kits**

- **Power Supply Option Shipping Dimensions**
  - Height: 8.75 in (223 mm)
  - Width: 8.63 in (219 mm)
  - Depth: 35.13 in (892 mm)
  - Weight: 8.5 lbs (3.85 kg)

- **Fan Option Shipping Dimensions**
  - Height: 8.75 in (223 mm)
  - Width: 9.75 in (248 mm)
  - Depth: 15.88 in (403 mm)
  - Weight: 4.0 lbs (1.8 kg)

- **BladeSystem Onboard Administrator Option Shipping Dimensions**
  - Height: 2.50 in (63.5 mm)
  - Width: 9.88 in (251 mm)
  - Depth: 13.50 in (343 mm)
  - Weight: 4.0 lbs (1.8 kg)

**Environmental-friendly Products and Approach**

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.
## Summary of Changes

<table>
<thead>
<tr>
<th>Date</th>
<th>Version History</th>
<th>Action</th>
<th>Description of Change:</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-Nov-2014</td>
<td>From Version 59 to 60</td>
<td>Changed</td>
<td>Subheader was changed to Fan Bay and Device Bay Numbering Populating Guidelines. Device bay and fan population guidelines were updated</td>
</tr>
<tr>
<td>07-Nov-2014</td>
<td>From Version 58 to 59</td>
<td>Changed</td>
<td>Overview, Pre-configured Models and Configuration Information Factory Integrated Models sections were updated</td>
</tr>
<tr>
<td>25-Sep-2014</td>
<td>From Version 57 to 58</td>
<td>Changed</td>
<td>Changes were made throughout the QuickSpecs.</td>
</tr>
<tr>
<td>9-Sep-2014</td>
<td>From Version 56 to 57</td>
<td>Changed</td>
<td>Changes were made throughout the QuickSpecs.</td>
</tr>
<tr>
<td>18-Aug-2014</td>
<td>From Version 55 to 56</td>
<td>Changed</td>
<td>Overview, Related Options and Technical Specifications sections were updated</td>
</tr>
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<td></td>
<td></td>
<td><strong>Added</strong></td>
<td>Skus added on configuration Information Factory Integrated Models section:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 753623-B21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 753618-B21</td>
</tr>
<tr>
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<td></td>
<td>- 753619-B21</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>- C6N33ABE</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Skus added on related options section:</td>
</tr>
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<td></td>
<td>- J6W98A</td>
</tr>
<tr>
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<td>- J6W99A</td>
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<tr>
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<td>- J6X01A</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>- J6X02A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- J6X03A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Power Input Module and Power Supply Specifications section added</td>
</tr>
<tr>
<td>24-Jun-2014</td>
<td>From Version 54 to 55</td>
<td>Changed</td>
<td>Overview, Configuration Information Factory Integrated Models, Related Option, Device Bay and Fan Bay Numbering and Population Guidelines, Technical Specifications sections were updated</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Removed</strong></td>
<td>Sku 691380-B21 was deleted, HP Power Distribution Units skus were deleted</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Added</strong></td>
<td>HP Data Center Racks skus on Configuration Information Factory Integrated Models section, HP Power Distribution Units skus were added</td>
</tr>
</tbody>
</table>

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