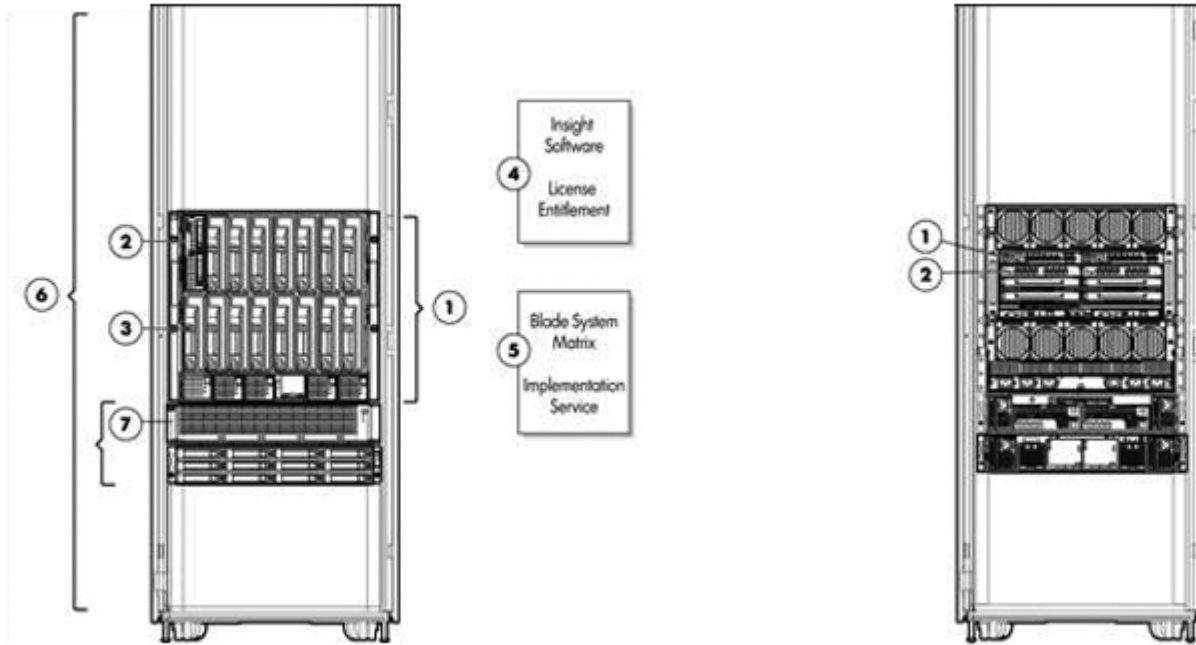


Overview

Starter Kit



Starter Kit - Front

1. HP BladeSystem c7000 enclosure, single phase
2. HP ProLiant BL460c G6 (half-height) server blade (recommended configuration for central management server, hosting the management software, but can be substituted)
3. 15 half-height device bays available for populating with server blades
4. Complete Infrastructure Operating Environment licenses (Insight software)
5. Onsite BladeSystem Matrix Starter Kit Implementation service
6. HP 10000 G2 Series rack, and rack and power options
NOTE: Rack is not included with the Matrix Starter Kit
7. Existing or supported Fibre Channel SAN or choose this recommended option: HP StorageWorks 4400 Enterprise Virtual Array Starter Kit (StorageWorks EVA4400 controller pair enclosure with embedded switches, drive enclosure, eight 450-GB 10K-rpm 4-Gb dual-port FC EVA M6412 hard disk drives, CommandView and SmartStart media and 4x 1-TB Licenses To Use)

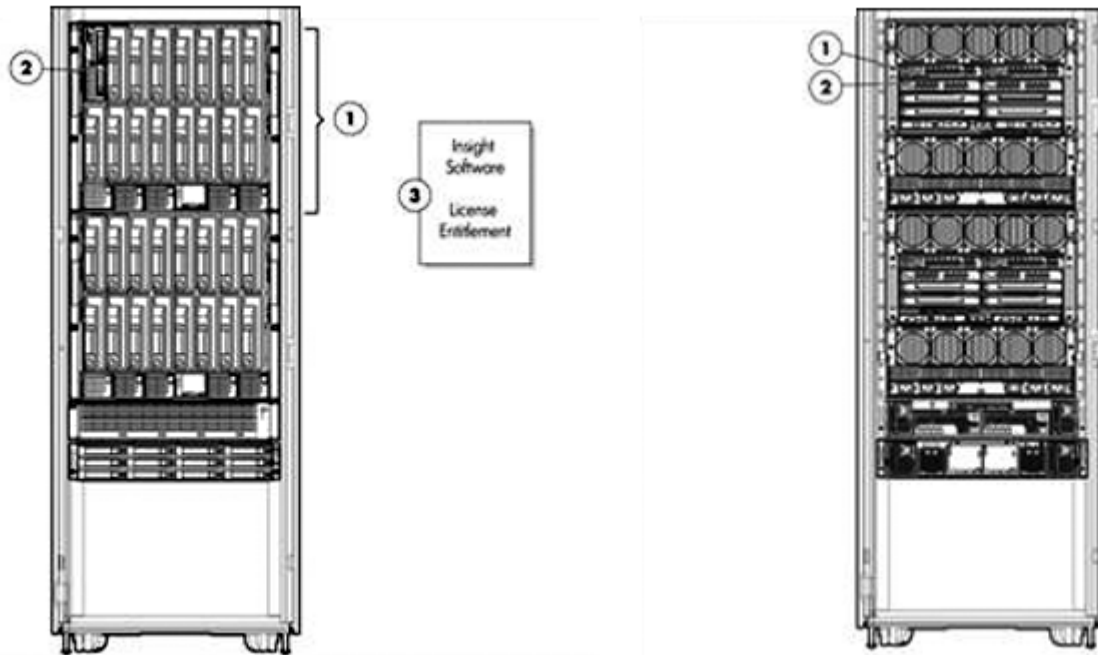
Starter Kit - Rear

1. HP Virtual Connect Flex-10 10-Gb Ethernet modules (redundant pair)
2. HP Virtual Connect 8Gb 24-Port FC modules (redundant pair)

Expansion Kit



Overview



Expansion Kit - Front

1. HP BladeSystem c7000 enclosure, single phase
2. 16 half-height device bays available for populating with server blades
3. Complete Infrastructure Operating Environment licenses (Insight software)

Expansion Kit - Rear

1. HP Virtual Connect Flex-10 10-Gb Ethernet modules (redundant pair)
2. HP Virtual Connect 8Gb 24-Port FC modules (redundant pair)

NOTE: All HP BladeSystem Matrix infrastructure ships with licensed disaster recovery protection for both physical and virtual servers, in coordination with data replication provided by StorageWorks EVA Continuous Access software. Disaster recovery protection can be achieved by implementing a secondary infrastructure at a remote location, and enabling storage replication between the two sites.

What's New

- Updated the BladeSystem Matrix Starter Kit's central management server (CMS) with additional memory and other enhancements (part number changed to 570775-B22). This is a default CMS server SKU that can be substituted with another server if desired to meet a customer's unique requirements or preferences.

Overview

At A Glance

HP BladeSystem Matrix is a converged infrastructure that delivers an operationally efficient data center infrastructure without high upfront or ongoing costs. It is built upon the core technologies of HP BladeSystem, HP Virtual Connect, HP Insight software and implementation services. It also includes optimized support for HP StorageWorks and factory integration and onsite services.

BladeSystem Matrix delivers a converged infrastructure built on well-established HP technologies and functionality including:

- HP BladeSystem c-Class c7000 enclosure, server blades, Virtual Connect with Flex-10, and Thermal Logic
- HP Insight software
- Factory Integration, Factory Express, and Technology Services
- HP StorageWorks 4400 Enterprise Virtual Array Starter kit (recommended option)

Also available worldwide are HP Financial Services offerings unique to Matrix, including 0% lease and Pay as You Grow payment programs. Instant capacity support for HP ProLiant server blades in Matrix is available in the U.S. only, and other programs and incentives are available regionally.

For more information about HP BladeSystem Matrix information, see: <http://www.hp.com/go/matrix>

For more information about HP BladeSystem, see: <http://www.hp.com/go/bladesystem>

For more information about HP Insight software, see: <http://www.hp.com/go/insight>

For more information about StorageWorks, see: <http://www.hp.com/go/storageworks>

For more information about Factory Express, see: <http://h71028.www7.hp.com/enterprise/cache/97688-0-0-225-121.html>

Ordering HP BladeSystem Matrix

The method for purchasing HP BladeSystem Matrix is simple. Start by ordering a HP BladeSystem Matrix Starter Kit, which contains the infrastructure needed for a fully-working environment supporting up to 16 HP ProLiant half-height server blades (Integrity blades may also be ordered as noted below, although additional management software licenses must be additionally purchased). Add Expansion Kits now or in the future to expand your HP BladeSystem Matrix infrastructure with additional infrastructure and blades. The central management server (CMS) host implemented in the Starter Kit simply extends its domain to manage additional infrastructure that might be added by adding Expansion Kits.

NOTE: The Expansion Kit may also be purchased separately.

NOTE: Expansion Kits purchased must be co-located with the Starter Kit(s) to which they are connecting to.

NOTE: For detailed ordering information please see the Configuration Information Factory Integrated Models section of this QuickSpecs.

With all HP BladeSystem Matrix Starter and Expansion Kit orders, the following services are included:

- Factory services to default configure, rack, and cable the infrastructure in a rack,
- Verify and update firmware for the entire solution being purchased (the BladeSystem Matrix kits and the supported blades and options purchased with those kits) to the latest current BladeSystem Matrix firmware release set. This ensures that the BladeSystem Matrix solution will leave the factory with the right levels of firmware needed for the end to end solution to be successful. (For specific version numbers supported and required, please refer to the HP BladeSystem Matrix Compatibility Chart on <http://www.hp.com/go/matrixcompatibility>)
- Coordinate hand-off to Technology Services (TS) or authorized partner. A TS or partner project manager is assigned for managing pre-engagement and assigning a team of engineers to perform the implementation service at the customer's site.

Factory Express custom configuration services should be added to the order if a StorageWorks EVA4400 configuration is also purchased with the Starter (or Expansion) Kits, or if any other custom factory services are needed. Factory Express uses its standard processes for capturing customer intent and requirements, as well as providing order verification services.

While Factory Integration/Factory Express are building the BladeSystem Matrix environment for a given customer, an assigned project manager from Technology Services will start managing a team of TS engineers to begin planning the rollout of the implementation service, including engaging with the customer on environmental requirements and related details. TS engineers will start the actual implementation on the Matrix equipment as soon as possible after its arrival date at the customer site.

NOTE: The account team must initiate contact with a Factory Express Engagement Project Manager (EPM) to initiate the Factory Express processes, including communication of the Customer Intent Document (CID).

The Technology Services BladeSystem Matrix Starter Kit Implementation Service is detailed in a further section below.

HP BladeSystem Matrix

BladeSystem Matrix Infrastructure Operating Environment (HP Insight software)

The BladeSystem Matrix Infrastructure Operating Environment delivers the functionality described below. Orchestrated provisioning of services

- Application infrastructure design console with repeatable, best practice templates
- Self-service, automated provisioning of infrastructure with workflow
- Infrastructure services catalog
- Cross-platform, multi-OS server deployment
- Storage LUN configuration and presentation/zoning (with purchase of EVA4400)

Optimization and lifecycle management

- Virtual machine controls and synchronized integration with VMware vCenter, Microsoft System Center, and common enterprise management software via APIs
- Ongoing capacity management
- Consolidation what-if analysis and comparison reports
- Unlimited x2V and x2ProLiant migrations (for x86 servers)
- Advanced visualization of infrastructure resources including virtual machines
- Remote console and remote media for servers
- Power management and dynamic power capping
- Pre-defined power policies to direct power to servers providing critical business services
- Security and patch management
- Virtual Connect centralized management

Availability and proactive support

- Built-in disaster recovery management (physical to virtual, physical to physical, and virtual to virtual)
- Automated server failover with spare servers
- Health monitoring and alerting including pre-alerting for server, network, and storage resources
- Secure remote monitoring, notification/advisories, dispatch and proactive service support

BladeSystem Matrix Starter Kit Implementation Service (onsite), plus additional services

In addition to the BladeSystem Matrix Implementation Service, HP highly recommends HP Education Services (for customer training and education) and Additional Technical Services, as well as in-depth installation or implementation services as may be needed. These recommended services are listed in the "Service and Support Offerings" section later in this document. The onsite BladeSystem Matrix Implementation Service for the Starter Kit consists of these steps:

- Upon delivery to customers site, unpack and inspect for damages
- Integrate hardware in to customers environment, power, network cabling
- Installation and configuration of the central management server (CMS)
 - Installation and configuration of the software required for management
- Deployment of operating systems to configured LUNs on the optionally purchased StorageWorks EVA 4400 SAN or an existing SAN

NOTE: HP StorageWorks EVA with Continuous Access is required to fully implement disaster recovery capability with the recovery functionality included with BladeSystem Matrix.

- 1 HP server blade running a native OS of the customer's choice (Windows, Linux) on a boot LUN
- 2 HP server blades each running a single hypervisor of the customer's choice (VMware ESX or Microsoft Hyper-V), each on their own boot LUN (licenses are customer provided), each on their own boot LUN (licenses are customer provided)
 - Configuration of up to 2 VMs

HP BladeSystem Matrix

- 1 HP server blade installed and configured to be a target for a blade move
- Configure up to two physical target server operating systems to boot from SAN
- Orientation of the BladeSystem Matrix solution
 - Navigation through installed components and all management software
 - Review of the configured hardware components and their configuration
 - Review of the completed system topology
 - How to call HP for support
 - Availability of additional services, educational services, etc. See: <http://h20219.www2.hp.com/services/cache/10746-0-0-225-121.html> and <http://www.hp.com/services/insight> and <http://www.hp.com/learn/proliant>
 - BladeSystem Matrix demonstrations. See: <http://www.hp.com/go/matrix>

Warranty services

- The HP BladeSystem Matrix infrastructure 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.
- Offered for BladeSystem Matrix are "uplift" HP Care Pack Services options that extend warranty service period up to 3-, 4-, or 5- years across the entire hardware and software infrastructure from the following default included levels of warranty support:
 - Enclosure: Three-year parts and labor, on-site limited global warranty. Certain restrictions and exclusions apply
 - Enclosure options: fans, power supplies, Onboard Administrator, 1 Year parts only or enclosure warranty
 - HP Virtual Connect interconnects: 1 Year parts and labor, on-site regardless of the warranty period for the system in which they are installed
 - HP Insight software: 1 Year 24 x 7 Technical Support and Update Service
 - 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

For additional information, see: <http://www.hp.com/go/bladeSystem> and <http://www.hp.com/services/insight>.

BladeSystem Matrix Orchestration Environment (HP Insight software) Support

BladeSystem Matrix management software includes one year of 24 x 7 HP Software Technical Support and Update Service. This service provides access to HP technical resources for help in resolving software implementation or operations problems. The service also provides access to software updates and reference manuals either in electronic form or on physical media as they are made available from HP.

With this service, HP BladeSystem Matrix users benefit from expedited problem resolution and proactive notification and delivery of software updates.

As part of your implementation service, HP services personnel or your authorized provider will activate your HP Software Technical Support and Update Service for HP Insight software at:

<http://www.hp.com/services/insight>.

Your Service Agreement Identifier (SAID) will be delivered to you after registration. After you have received your SAID, you can go to the software update manager (SUM) web page to view your contract online and elect electronic delivery (in addition to standard media-based updates). For more information about this service, see: <http://www.hp.com/services/insight>.

HP BladeSystem Matrix

HP offers a number of software support services, many of which are provided to customers at no additional charge.

Join the Discussion at: <http://www.itrc.hp.com>

The HP Support Forum is a community-based, user supported tool for HP customers to participate in discussions amongst the customer community about HP products. For discussions related to HP Insight software, see the "Management Software and System Tools" area.

HP is proactive in its approach to the quality and security of all its management software. Be sure to check the website often for the latest down-loadable security updates. To initiate a subscription to receive future HP Security Bulletins via e-mail:

http://h30046.www3.hp.com/driverAlertProfile.php?regioncode=NA&langcode=USENG&jumpid=in_SC-GEN_driverITRC&topiccode=ITRC

HP Worldwide Customer Service contact numbers are available at:

<http://www.hp.com/country/us/en/wwcontact.html>.

HP Financial Services

To support customers' transition, HP Financial Services (HPFS) can help in a way that you may not have considered. HPFS can help you invest in your business while preserving precious capital via Pay as You Grow for HP BladeSystem Matrix, an offer that allows customers to lower their first-year cash outflows by more than 65% while giving them the flexibility to align spending with forecasted usage in subsequent years.

For a limited time, get the technology your business needs and the flexibility and affordability you deserve with our low-rate lease offers for BladeSystem Matrix, as low as 0% for 36 months in some participating countries around the world. Contact your local HP Financial Services Representative. In the United States, call 1-888-277-5942. In Canada, dial 1-800-HP-LEASE. For more information please visit: www.hp.com/hpfinancialservices for links to HP Financial Services around the world.

ProLiant Instant Capacity Program (U.S. only)

The ProLiant Instant Capacity program (U.S. only) provides cost-effective "just in time" inventory protection. ProLiant iCAP is designed to provide "ready to run" servers for immediate activation, while avoiding up-front costs.

- Supported servers include BladeSystem ProLiant (and ML/DL) servers deployed via Direct fulfillment
- Uses HP Systems Insight Manager, automated, billing and tracking process upon activation and consumption
- Servers can be pre-racked, pre-imaged, and tested in preparation of activation
- Amortize total blade infrastructure (rack, enclosure, power, interconnects) over the total number of blades
- Warranty commences once customer has been invoiced (title exchanges)
- Price captured at time of shipment
- Ability to reset target inventory levels in real time

HP BladeSystem Matrix

Factory Express Portfolio for Servers and Storage

For HP BladeSystem Matrix, HP Factory Express services are added if the StorageWorks EVA4400 SAN is purchased with the BladeSystem Matrix Starter Kit. If other custom requirements or intents are required for a given customer's BladeSystem Matrix order, Factory Express capabilities may also be called upon. 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 servers, HP ProLiant servers, HP ProLiant & Integrity c-Class BladeSystem server blades, HP 9000 servers as well as the StorageWorks MSAxxxx, VA7xxx, EVA, and XP storage products, rackable tape libraries and configurable network switches.

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

HP Enterprise Configurator

The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

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 HP 10000 G2 Series racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

NOTE: For operation with the DC Input Module the HP 10000 Series rack extension is required to allow DC power cabling to be installed.

CAUTION: BladeSystem Matrix infrastructures are best fulfilled by HP with the HP 10000 Series rack. However, if a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

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

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

Ordering BladeSystem Matrix

Configuration Information Factory Integrated Models - HP BladeSystem Matrix - Starter Kit

NOTE: This section lists the required steps for ordering a HP BladeSystem Matrix.

NOTE: All HP BladeSystem Matrix infrastructure ships with licensed disaster recovery protection for both physical and virtual servers, in coordination with data replication provided by StorageWorks EVA Continuous Access software. Disaster recovery protection can be achieved by implementing a secondary infrastructure at a remote location, and enabling storage replication between the two sites.

NOTE: To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator or contact your local sales representative for additional information on product offerings and requirements.

NOTE: FIO indicates that this option is a Factory Integrated Option.

Step 1: Select HP 10000 G2 Series Rack (Recommended, per Notes immediately below)

NOTE: For additional HP Rack information please visit:

<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html>

NOTE: For additional Rack Options please see the "Choose Additional Options" section of this QuickSpecs.

NOTE: The Starter Kit is recommended to be ordered with an HP rack. When not ordering with a rack, it is necessary for the customer to rack any BladeSystem Matrix enclosures in a rack prior to HP arriving onsite to complete the BladeSystem Matrix Implementation Service. You may purchase the HP Install c7000 Enclosure and Server Build Service to assist with onsite racking and cabling of BladeSystem Matrix enclosures into a rack. See the "Service and Support Offerings" section later in this document for the part numbers.

HP Rack Series

HP 10000 G2 Series racks (Graphite Metallic)

10642 G2 (42U) Rack Cabinet - Pallet	AF001A
10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
10642 G2 (42U) Rack Cabinet - Crated	AF003A
10642 G2 (42U) Rack Shock Pallet- for field racking (NA only)	AF007A
10636 G2 (36U) Rack Cabinet - Shock Pallet	AF011A
10636 G2 (36U) Rack Cabinet - Crated	AF012A
10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF013A
10636 G2 (36U) Rack Cabinet, without door - Shock Pallet	AF014A
10622 G2 (22U) Rack Cabinet Pallet	AF021A
10622 G2 (22U) Rack Cabinet Shock	AF022A
10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
10842 G2 (42U) Rack Cabinet Pallet	AF041A
10842 G2 (42U) Rack Cabinet Shock	AF042A
10647 G2 (47U) Rack Cabinet - Pallet	AF031A
10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A

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

http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html
(Worldwide)

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

Step 2: Select Required HP BladeSystem Matrix Starter Kit (Choose one of the following from each list unless otherwise noted)

<p>HP BladeSystem Matrix Starter Kit (Hardware Components)</p>	<p>NOTE: Starter Kit default components means HP ordering systems will default these selections when any unique HP BladeSystem Matrix part number is entered. The default selections can be changed to meet customer needs.</p> <p>NOTE: The Starter Kit does not include a central management server or CMS (see BladeSystem c-Class server blades section below for CMS server).</p> <p>HP BladeSystem Matrix Starter Kit (Hardware Components) 535888-B21</p> <p>HP BladeSystem Matrix Starter Kit (Hardware Components) includes:</p> <ul style="list-style-type: none"> ● HP BladeSystem c7000 enclosure, single-phase, single-phase with 6 power supplies, 10 fans ● HP BladeSystem c7000 Onboard Administrator with KVM option, redundant pair ● HP Virtual Connect Flex-10 10Gb Ethernet modules, redundant pair NOTE: No transceivers/SFPs included so that you can choose these options - need to add to order. See options for this immediately below. ● HP Virtual Connect 8Gb 24-Port FC Module for BladeSystem c-Class, redundant pair ● NOTE: Two [2] Fibre Channel SFP+ transceivers included with each module; therefore, 4 total transceivers per redundant pair. ● BladeSystem Matrix documentation CD ● BladeSystem Matrix label attached to 10000 series rack door handle <p>NOTE: Following are the VC Flex-10 10Gb Ethernet module transceiver/SFP options.</p>
	<p>HP BladeSystem 10Gb SR SFP+ 455883-B21</p> <p>HP BladeSystem 10Gb LR SFP+ 455886-B21</p> <p>HP BladeSystem 10Gb LRM SFP+ 455889-B21</p> <p>HP BladeSystem 1Gb SX SFP Opt Kit 453151-B21</p> <p>HP BladeSystem 1Gb RJ-45 SFP Opt Kit 453154-B21</p>
<p>HP BladeSystem Matrix Starter Kit (Software Licenses and media)</p>	<p>HP BladeSystem Matrix Starter Kit - HP Insight software TC637A</p> <p>NOTE: One (1) entitlement order number is provided. Includes the HP Insight software DVD media kit.</p> <p>NOTE: If the ordering system default of 3 years Technical Support and Update Service is rejected or not selected, the basic 1 year Technical Support and Update Service will apply.</p>
<p>HP BladeSystem Matrix Starter Kit (Implementation Service)</p>	<p>HP BladeSystem Matrix Starter Kit - Implementation Service, Fixed UK831E</p> <p>HP BladeSystem Matrix Starter Kit - Implementation Service, Flexible HA115A1-5NL</p>
<p>BladeSystem c-Class server blades (Central Management Server and Target Servers)</p>	<p>Central management server (CMS), recommended default SKU - please see all NOTES below 570775-B22</p> <p>HP ProLiant BL460c G6</p> <p>NOTE: This is the recommended default SKU for the Matrix central management server (CMS), to host the management software. It may be substituted with another server or blade configured per desired needs per notes below and per CMS sizing, scalability, and redundancy preferences.</p>

Ordering BladeSystem Matrix

HP ProLiant BL460c G6 CMS server blade is configured as follows:

- Dual processors - Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
- 32 GB (4 x 8GB) 2Rx4 PC3-10600R-9 Kit Registered DIMMs
- HP Smart Array P410i Controller (RAID 0/1)
- 512 MB Cache Module
- 2x HP 146GB 3G SAS 10K SFF DP HDDs
- QLogic QMH2562 8Gb FC HBA for HP BladeSystem c-Class

NOTE: Larger environments may warrant having multiple CMS servers for these reasons: scalability, high availability of the management server and data, and separation of database or management components for performance or security access reasons. For high availability of the CMS, please refer to these white papers: <http://h10018.www1.hp.com/wwsolutions/misc/hpsim-helpfiles/hpsim-largeEnvmnt-53.pdf>
http://h10018.www1.hp.com/wwsolutions/misc/hpsim-helpfiles/deploying_MSCclusters.pdf

NOTE: If the recommended HP ProLiant BL460c G6 configuration above is not purchased, the customer agrees to supply or purchase other HP ProLiant rack-mount server(s) or HP ProLiant server blade(s) that meet the requirements. See also the CMS requirements in this document for more information: <http://docs.hp.com/en/T8671-90069/T8671-90069.pdf>.

NOTE: The HP BladeSystem c7000 Enclosure holds up to 16 half-height blades. Server blanks will be shipped in all empty bays. If the HP ProLiant BL460c recommended configuration above is purchased, it will take up one of the 16 half-height bays, leaving 15 remaining half-height bays for managed, target blades.

Target server blades

NOTE: It is highly recommended that at least four (4) additional HP ProLiant c-Class blades be ordered with each Starter Kit, since the Onsite Implementation Service includes provisioning of up to four (2) HP ProLiant blades, two of which are directly provisioned as physical servers and two of which are virtual machine hosts. See separate section on "Onsite Implementation Service" for details. All shipping HP ProLiant c-Class blades are supported except the HP ProLiant BL2x220c server blades.

NOTE: For server blade information, please visit:

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

NOTE: HP ProLiant server blades should be configured to connect via the Virtual Connect modules included in the BladeSystem Matrix kits, - i.e. they should have a Fibre Channel Host Bus Adapter (HBA) mezzanine card installed.

HP Integrity Servers

NOTE: HP Integrity BL860c and HP Integrity BL870c c-Class blades are supported when configured with Integrity software products. For additional server blade information please visit:

<http://h18004.www1.hp.com/products/quickspecs/Division/Division.html#12391>.

NOTE: The management software licenses packaged with HP BladeSystem Matrix provide licensing to manage HP ProLiant c-Class server blades only, except for Virtual Connect Enterprise Manager software (VCEM) as this is licensed to the actual BladeSystem c7000 enclosure. HP Integrity c-Class server blades require separate

Ordering BladeSystem Matrix

licensing. For HP-UX users, we recommended HP-UX 11i v3 Virtual Server OE (VSE-OE) or HP-UX 11i v3 Data Center OE (DC-OE) (see: www.hp.com/go/hpux and see also the Integrity for Matrix ordering information at www.hp.com/go/matrix)

HP Interconnect Options

The Virtual Connect interconnect modules that are built in to the Starter and Expansion kits are not removable. Additional supported interconnected options may be added to the remaining available interconnect bays (bays 5/6 and 7/8). For supported BladeSystem Matrix interconnect options, see the Compatibility chart at: <http://www.hp.com/go/matrixcompatibility>.
For QuickSpecs for BladeSystem c-Class interconnect options see: http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html

Step 3: Choose Additional Recommended Options

HP StorageWorks EVA4400 (factory integrated)

NOTE: Recommended storage target for Matrix; may be substituted. See note below.

HP StorageWorks 4400 Enterprise Virtual Array Starter Kit 10K, Factory integrated

AJ669B

NOTE: This is the default selection for hosting boot and data LUNs for the BladeSystem Matrix environment.

HP EVA4400 SAN Starter Kit 450GB 10K Factory integrated includes:

- EVA4400 Dual Controller array with embedded NPIV-supported 8Gb/s switches
- M6412 12-bay HDD enclosure
- Eight 450GB 10K RPM disk drives
- Four Emulex 8Gb/s PCI-E HBAs - included to also connect up to four stand-alone servers to this EVA4400
- Command View EVA V9.0 (or later) Media Kit and four 1TB Licenses to Use
- SmartStart for EVA Storage v3.0
- XCS 9.0 Firmware (or later)

NOTE: Please add fibre channel cables to the order as needed.

NOTE: Includes HP Global Limited Warranty and Technical Support, which includes 3 years 9x5 hardware support, with next business day (NBD) response. HDDs carry a 3 year, parts only warranty.

NOTE: Order the HP StorageWorks 4400 Enterprise Virtual Array Starter Kit (AJ699B with Factory Express services: HA839A1 and HA865A1), or order or supply another HP StorageWorks or third-party Fibre Channel SAN array certified for HP BladeSystem c-Class servers (see: <http://h18004.www1.hp.com/products/blades/components/c-class-sans.html>). If a SAN other than the default StorageWorks EVA4400 package is used, HP onsite implementation service team will confirm specific requirements regarding LUN zoning, etc. prior to implementation.

NOTE: HP Factory Express services are added if the StorageWorks EVA4400 SAN is purchased with the BladeSystem Matrix Starter Kit.

HP Factory Express Server System Custom Service

HA839A1

NOTE: Required Selection with AJ699B.

HP Rack Signal Cable Interconnect Service

HA865A1

NOTE: Required Selection with AJ699B.

NOTE: The two Factory Express options (P/Ns HA839A1 and HA865A1) provide customer-defined LUN setup (enabling creation of switch zones and boot from SAN) and cabling of EVA4400, respectively.

NOTE: Buy one per BladeSystem Matrix Starter/Expansion kit (supports up to 32

Ordering BladeSystem Matrix

Enterprise Plus licenses for BladeSystem Matrix	processor sockets).	
	VMware vSphere Enterprise Plus, 32 processor socket licenses, 3yr 24x7, no media	TC290A
	VMware vSphere Enterprise Plus, 32 processor socket licenses, 1yr 24x7, no media	TC289A
	VMware vSphere Installation & Startup Enterprise Service, Flexible	HA124A1#5NS
VMware vCenter Server Standard for vSphere	VMware vSphere Installation & Startup Enterprise Service, Fixed	UK837E
	HP VMware vCenter Server 4.0 Standard for vSphere	571780-B21
	NOTE: 4.0 here refers to vSphere, not ESX 4.0. Reference the Matrix compatibility chart at: http://www.hp.com/go/matrixcompatibility for the latest supported ESX versions. NOTE: vCenter is licensed per instance (one needed per management domain). NOTE: This does not include VMware vCenter for vSphere implementation services, which may be purchased separately.	
VMware vSphere Enterprise Plus individual licenses, per processor socket	HP VMware vSphere 4.0 Enterprise Plus, 1 (one) processor socket license, 1yr 24x7, no media	571774-B21
	NOTE: 4.0 here refers to vSphere, not ESX 4.0. Reference the Matrix compatibility chart at: http://www.hp.com/go/matrixcompatibility for the latest supported ESX versions.	
	NOTE: This 4.0 license can be used with prior ESX versions, for example, ESX 3.5.	
	NOTE: Includes technical support and updates for 1 year. For more information, see: http://h18006.www1.hp.com/products/servers/software/vmware/index.html	
Microsoft Windows Server 2008 with Hyper-V licenses	Windows Server 2008 Standard Edition OS Not Pre-Installed, FIO (includes 1 Hyper-V license)	468721-B21
	Windows Server 2008 Enterprise Edition OS Not Pre-Installed, FIO (includes 4 Hyper-V licenses)	468723-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: Additional supported options may be added to the Starter Kit as desired.

NOTE: For additional options, please refer to the "Additional Options" section below. For additional options, including server blade enclosures interconnect options and power subsystem options; please see the Core Options and Additional sections below; or the following QuickSpecs:

HP BladeSystem c7000 Enclosure QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html

and HP BladeSystem c-Class Interconnect Components QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html

HP BladeSystem Matrix Expansion Kit	HP BladeSystem Matrix Expansion Kit Includes:	507021-B21
	<ul style="list-style-type: none"> ● HP BladeSystem c7000 enclosure, single-phase, single-phase with 6 power supplies, 10 fans ● HP BladeSystem c7000 Onboard Administrator with KVM option, redundant pair ● HP Virtual Connect Flex-10 10Gb Ethernet modules, redundant pair NOTE: No transceivers/SFPs included so that you can choose these options - need to add to order. See options for this in Note immediately below. ● HP Virtual Connect 8Gb 24-Port FC Module for BladeSystem c-Class, 	

Ordering BladeSystem Matrix

redundant pair

NOTE: Two [2] Fibre Channel SFP+ transceivers included with each module; therefore, 4 total transceivers per redundant pair.

- BladeSystem Matrix documentation CD
- BladeSystem Matrix label for attachment to a 10000 series rack door handle
- All necessary Insight software management software licenses

NOTE: Add additional Expansion Kits as your BladeSystem Matrix environments requires or on an as-needed basis.

NOTE: Expansion Kits purchased must be co-located with the Starter Kit(s) to which they are connecting to.

NOTE: Following are the VC Flex-10 10Gb Ethernet module transceiver/SFP options.

HP BladeSystem 10Gb SR SFP+	455883-B21
HP BladeSystem 10Gb LR SFP+	455886-B21
HP BladeSystem 10Gb LRM SFP+	455889-B21
HP BladeSystem 1Gb SX SFP Opt Kit	453151-B21
HP BladeSystem 1Gb RJ-45 SFP Opt Kit	453154-B21

BladeSystem c-Class server blades

NOTE: For server blade information, please visit:

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

NOTE: HP ProLiant server blades should be configured to connect via the Virtual Connect modules included in the BladeSystem Matrix kits, - i.e. they should have a Fibre Channel Host Bus Adapter (HBA) mezzanine card installed.

NOTE: The HP BladeSystem c7000 Enclosure holds up to 16 half-height blades. Server blanks will be shipped in all empty bays.

HP Integrity Servers

NOTE: HP Integrity BL860c and HP Integrity BL870c c-Class blades are supported when configured with Integrity software products. For additional server blade information please visit:

<http://h18004.www1.hp.com/products/quickspecs/Division/Division.html#12391>.

NOTE: The management software licenses packaged with HP BladeSystem Matrix provide licensing to manage Integrity c-Class server blades only, except for Virtual Connect Enterprise Manager software (VCEM) as this is licensed to the actual BladeSystem c7000 enclosure. HP ProLiant c-Class server blades require separate licensing. For HP-UX users, we highly recommended purchasing HP-UX 11i v3 Virtual Server OE (VSE-OE) or HP-UX 11i v3 Data Center OE (DC-OE) (see:

www.hp.com/go/hpux and see also the Integrity for Matrix ordering information at www.hp.com/go/matrix)

HP Interconnect Options

Additional supported SAN and Ethernet options may be added to the remaining available interconnect bays (bays 5/6 and 7/8). For supported BladeSystem Matrix interconnect options, see the Compatibility chart at: <http://www.hp.com/go/matrix>. For QuickSpecs for BladeSystem c-Class interconnect options see:

http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html

Support Plus 24 options for BladeSystem Matrix Starter Kit

NOTE: 3-year Support Plus 24 for the entire BladeSystem Matrix Starter Kit hardware and software (default selection). This Support Plus 24 raises the support levels of all the Matrix components uniformly up to 3 years for easier tracking of warranty support.

3 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Fixed	UE479E
4 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Fixed	UE483E
5 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Fixed	UE487E



Ordering BladeSystem Matrix

3 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Flexible	HA104A3#7FX
4 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Flexible	HA104A4#7FX
5 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Flexible	HA104A5#7FX
Support Plus 24 - 3 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA110A3#7FX
Support Plus 24 - 4 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA110A4#7FX
Support Plus 24 - 5 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA110A5#7FX
Proactive 24 - 3 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA111A3#7FX
Proactive 24 - 4 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA111A4#7FX
Proactive 24 - 5 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA111A5#7FX
Critical Service - 3 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA112A3#7FX
Critical Service - 4 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA112A4#7FX
Critical Service - 5 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible	HA112A5#7FX
3 year 24x7 BL Matrix Software Support, Fixed	UM862E
4 year 24x7 BL Matrix Software Support, Fixed	UM863E
5 year 24x7 BL Matrix Software Support, Fixed	UM864E
3 year 24x7 BL Matrix Software Support, Flexible	HA107A3#9K2
4 year 24x7 BL Matrix Software Support, Flexible	HA107A4#9K2
5 year 24x7 BL Matrix Software Support, Flexible	HA107A5#9K2
Support Plus 24 - 3 year Support Plus 24 BLc Matrix Software Support, Flexible	HA110A3#9K2
Support Plus 24 - 4 year Support Plus 24 BLc Matrix Software Support, Flexible	HA110A4#9K2
Support Plus 24 - 5 year Support Plus 24 BLc Matrix Software Support, Flexible	HA110A5#9K2
Proactive 24 - 3 year Support Plus 24 BLc Matrix Software Support, Flexible	HA111A3#9K2
Proactive 24 - 4 year Support Plus 24 BLc Matrix Software Support, Flexible	HA111A4#9K2
Proactive 24 - 5 year Support Plus 24 BLc Matrix Software Support, Flexible	HA111A5#9K2
Critical Service - 3 year Support Plus 24 BLc Matrix Software Support, Flexible	HA112A3#9K2
Critical Service - 4 year Support Plus 24 BLc Matrix Software Support, Flexible	HA112A4#9K2
Critical Service - 5 year Support Plus 24 BLc Matrix Software Support, Flexible	HA112A5#9K2

Ordering BladeSystem Matrix

Configuration Information Factory Integrated Models - HP BladeSystem Matrix - Expansion Kit

Step 1: Select Required HP BladeSystem Matrix Expansion Kit (Choose one of the following from each list unless otherwise noted)

Expansion Kit

NOTE: Add HP server blades and other supported options to the Expansion Kit as desired. Depending on quantity of Expansion Kits purchased, additional racks, storage arrays, and other options may also be warranted.

NOTE: Expansion Kits purchased must be co-located with the Starter Kit(s) to which they are connecting to.

NOTE: For HP BladeSystem Matrix compatibility chart:

<http://www.hp.com/go/matrixcompatibility> for details on supported options, operating systems, etc.

HP BladeSystem Matrix Expansion Kit

507021-B21

Expansion Kit includes:

- HP BladeSystem c7000 enclosure, single-phase with 6 power supplies, 10 fans
- HP BladeSystem c7000 Onboard Administrator with KVM option, redundant pair
- HP Virtual Connect Flex-10 10Gb Ethernet module for the BladeSystem c-Class, redundant pair
- HP 8-Gb Virtual Connect Fibre Channel module for BladeSystem c-Class, redundant pair
- Factory services (firmware verification and default racking and cabling), if ordered CTO
- BladeSystem Matrix documentation CD
- BladeSystem Matrix label for attachment to a 10000 series rack door handle
- HP BladeSystem Matrix - HP Insight software licenses for 1 enclosure / 16-server with 3 years 24x7 Technical Support and Update Service:
- Software licenses for the Infrastructure Operating Environment (Insight Software)

NOTE: If the ordering system default of 3 years Technical Support and Update Service is rejected or not selected, or if the Expansion Kit is purchased BTO, the basic 1 year Technical Support and Update Service will apply.

Step 2: Select Recommended options for HP BladeSystem Expansion Kit (Choose one of the following from each list unless otherwise noted)

BladeSystem c-Class target server blades

Target server blades

NOTE: All shipping HP ProLiant c-Class blades are supported except the HP ProLiant BL2x220c server blades and workstation blades.

NOTE: For server blade information, please visit:

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

NOTE: HP ProLiant server blades should be configured to benefit from the Virtual Connect modules included in the Starter Kit, and necessary for full BladeSystem Matrix functionality - i.e. they should have a FC HBA mezzanine card installed.

NOTE: The HP BladeSystem c7000 Enclosure holds up to 16 half-height blades. Server blanks will be shipped in all empty bays.

HP Integrity Servers

NOTE: HP Integrity BL860c and HP Integrity BL870c c-Class blades are supported

Ordering BladeSystem Matrix

when configured with Integrity software products. For additional server blade information please visit:

<http://h18004.www1.hp.com/products/quickspecs/Division/Division.html#12391>.

NOTE: The management software licenses packaged with HP BladeSystem Matrix provide licensing to manage Integrity c-Class server blades only, except for Virtual Connect Enterprise Manager software (VCEM) as this is licensed to the actual BladeSystem c7000 enclosure. HP ProLiant c-Class server blades require separate licensing. For HP-UX users, we highly recommended purchasing HP-UX 11i v3 Virtual Server OE (VSE-OE) or HP-UX 11i v3 Data Center OE (DC-OE) (see:

www.hp.com/go/hpux and see also the Integrity for Matrix ordering information at www.hp.com/go/matrix)

Interconnect options

Additional supported SAN and Ethernet options may be added to the remaining available interconnect bays (bays 5/6 and 7/8). For supported BladeSystem Matrix interconnect options, see the compatibility chart at <http://www.hp.com/go/matrix>.

For QuickSpecs for c-Class interconnect options see:

http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html

Support Plus 24 options for the entire BladeSystem Matrix Expansion Kit

NOTE: 3-, 4-, and 5-year Support Plus 24 Care Pack uplifts are available for the entire BladeSystem Matrix Starter Kit hardware and software. Support Plus 24 raises the support levels of all the Matrix components uniformly up to 3-5 years for easier tracking of warranty support.

3 year Support Plus 24 BLC Matrix Expansion Kit Support, Fixed	UM859E
4 year Support Plus 24 BLC Matrix Expansion Kit Support, Fixed	UM860E
5 year Support Plus 24 BLC Matrix Expansion Kit Support, Fixed	UM861E
3 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA110A3#9K1
4 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA110A4#9K1
5 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA110A5#9K1
Proactive 24 - 3 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA111A3#9K1
Proactive 24 - 4 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA111A4#9K1
Proactive 24 - 5 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA111A5#9K1
Critical Service - 3 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA112A3#9K1
Critical Service - 4 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA112A4#9K1
Critical Service - 5 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA112A5#9K1
24x7 4hr HW Support - 3 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA104A3#9K1
24x7 4hr HW Support - 4 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA104A4#9K1
24x7 4hr HW Support - 5 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA104A5#9K1
24x7 SW Support - 3 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA107A3#9K1
24x7 SW Support - 4 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA107A4#9K1
24x7 SW Support - 4 year Support Plus 24 BLC Matrix Expansion Kit Support, Flexible	HA107A5#9K1

Ordering BladeSystem Matrix

Step 3: Choose Additional Factory Integratable Options (one of the following from each list unless otherwise noted)

VMware vSphere Enterprise Plus licenses for BladeSystem Matrix	<p>NOTE: Buy one per BladeSystem Matrix Starter/Expansion kit (supports up to 32 processor sockets).</p>	
	VMware vSphere Enterprise Plus, 32 processor socket licenses, 3yr 24x7, no media	TC290A
	VMware vSphere Enterprise Plus, 32 processor socket licenses, 1yr 24x7, no media	TC289A
	VMware vSphere Installation & Startup Enterprise Service, Flexible	HA124A1#5NS
	VMware vSphere Installation & Startup Enterprise Service, Fixed	UK837E
VMware vCenter Server Standard for vSphere	<p>HP VMware vCenter Server 4.0 Standard for vSphere</p> <p>NOTE: 4.0 here refers to vSphere, not ESX 4.0. Reference the Matrix compatibility chart at: http://www.hp.com/go/matrixcompatibility for the latest supported ESX versions.</p> <p>NOTE: vCenter is licensed per instance (one needed per management domain).</p> <p>NOTE: This does not include VMware vCenter for vSphere implementation services, which may be purchased separately.</p>	571780-B21
VMware vSphere Enterprise Plus individual licenses, per processor socket	<p>HP VMware vSphere 4.0 Enterprise Plus, 1 (one) processor socket license, 1yr 24x7, no media</p> <p>NOTE: 4.0 here refers to vSphere, not ESX 4.0. Reference the Matrix compatibility chart at: http://www.hp.com/go/matrixcompatibility for the latest supported ESX versions.</p> <p>NOTE: This 4.0 license can be used with prior ESX versions, for example, ESX 3.5.</p> <p>NOTE: Includes technical support and updates for 1 year. For more information, see: http://h18006.www1.hp.com/products/servers/software/vmware/index.html</p> <p>NOTE: One instance of VMware vCenter Server (see below) is required to enable vSphere features such as VMware VMotion, VMware Distributed Resource Scheduler, and more.</p>	571774-B21
Microsoft Windows Server 2008 with Hyper-V licenses	Windows Server 2008 Standard Edition OS Not Pre-Installed, FIO (includes 1 Hyper-V license)	468721-B21
	Windows Server 2008 Enterprise Edition OS Not Pre-Installed, FIO (includes 4 Hyper-V licenses)	468723-B21

Ordering BladeSystem Matrix

Step 4: Choose Additional Options for Factory Integration

Rack power distribution for BladeSystem Matrix enclosures

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

Power Distribution Units	HP Monitored Power Distribution Unit: Half Rack Version	
	HP 17.3-kVA S348 Monitored PDU - single input, 3Ø, 48A (NA/JPN)	AF916A
	HP 14.4-kVA S340 Monitored PDU - single input 3Ø, 40A (NA/JPN)	AF536A
	HP 22-kVA S332 Monitored PDU - single input 3Ø, 32A (INTL)	AF917A
	Modular PDUs 1U/0U (Up to 28 outlets)	
	NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 G2 and 9000 series racks).	
	HP 17.3-kVA Modular PDU, 48A 3Ø, Core Only (NA/JPN)	AF511A
	HP 14.4-kVA Modular PDU, 40A 3Ø, Core Only (NA/JPN)	AF519A
	HP 22-kVA Modular PDU, 32A 3Ø, Core Only (Intl)	AF518A
	HP 8.6-kVA Modular PDU 24A 3Ø Core Only (NA/JPN)	AF512A
	HP 11-kVA Modular PDU 16A 3Ø Core Only (Intl)	AF513A
	HP 8.3k-VA Modular PDU 40A Core Only (NA/JPN)	252663-D75
	HP 9.2-kVA Modular PDU 40A Core Only (Intl)	252663-B34
	HP 7.3-kVA Modular PDU 32A Core Only (Intl)	252663-B33
	HP 4.9-kVA Modular PDU 24A Core Only (NA/JPN)	252663-D74
	NOTE: The Core Only Modular Power Distribution Unit Kits excludes the extension bars as they are not required with the HP BladeSystem.	
	HP Two C-13 PDU Extension Bars	AF500A
	NOTE: Each extension bar has a C19 input and 7 C13 receptacles. The option is ideal for model S348, and, model S332, which both have only C19 outlets (12) and for all Core Only Modular PDUs.	

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

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

PDU cords	HP 16A IEC320-C19 to C20 1.2m/4ft PDU cord, Grey	AF575A
(HP C19 to C20)	HP 16A IEC320-C19 to C20 2m /6ft PDU cord, Grey	AF574A
	HP 16A IEC320-C19 to C20 2.5m/8ft PDU cord, Black	295633-B22
	HP 16A IEC320-C19 to C20 4.5m/15ft PDU cord, Black	E7804A

Additional Options

HP PCI expansion blades	PCI Expansion Blade	448018-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12753_div/12753_div.html	
	HP PCI Express Mezzanine pass-thru card for HP BladeSystem	431643-B21

Power cords

HP C19 - C20 Jumper Cords

HP 16A IEC320-C19 to C20 1.2m/4ft, PDU cord, Flint Gray	AF575A
HP 16A IEC320-C19 to C20 2m/6ft, PDU cord, Flint Gray	AF574A
HP 16A IEC320--C19 to C20 2.5m/8ft PDU cord, Black	295633-B22
HP 16A IEC320-C19 to C20 4.5m/15ft, PDU cord, Black	E7804A

HP HV Power Cords 200 - 240V AC

HP 16A 250V L6-30P/IEC320-C19 4.5m/15ft, NA	E7805A
HP 16A 250V NEMA L 6-20P/IEC320-C19 3.6m/12ft, NA	AF593A
HP 16A 250V NBR 14136/ IEC320-C19 2.5m/8ft, Brazil	AF592A
HP 16A 250V IRAM 2073/IEC320-C19 2.5m/8ft, AR	AF578A
HP 13A 250V BS-1363/IEC320-C19 3.6m /12ft, UK/Sing/HK	359615-031
HP 16A 250V CEE7-VII/IEC320- C19 3.6m/12ft, EU	AF576A
HP 15A 250V AS3112-3/IEC320-C19 3.6m/12ft, AU/NZ	AF577A
HP 16A 250V SABS 164/IEC320-C-9 3.6m /12ft, S.AFRICA	AF579A
HP 16A 250V CEI23-50/IEC320-C19 3.6m /12ft, ITALY/CHILE	AF580A
HP 16A 250V IEC309/IEC320-C19 3.6m/12ft, Denmark/Switzerland	AF581A
HP 16A 250V IS 1293/IEC320-C19 2.5m /8ft, INDIA	AF582A
HP 16A 250V SI-32/IEC320-C19 2.5m/8ft, ISRAEL	AF583A
HP 16A 250V GB1002/IEC320-C19 2.5m/8 ft, CHINA	AF584A
HP 16A 250V CNS690/IEC320-C19 2.5m/8 ft, TAWAIN	AF585A
HP 16A 250V stripped end/IEC320-C19 4.5m /15ft, WW	E7806A
HP 16A 250V SI-32/IEC320-C19 2.5m/8ft, ISRAEL	AF583A

Additional Options

Uninterruptible Power Systems	HP Rack Mounted R5500 UPS (single-phase)	
	HP R5500 VA 3U UPS, INTL	AF416A
	HP R5500 VA 3U UPS, NA/JPN	AF426A
	NOTE: For more information on the R5500 please consult the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11871_div/11871_div.html	
	HP Rack Mounted R8000 UPS (3-phase UPS)	
	HP R8000/3 Uninterruptible Power System 6U NA	AF431A
	HP R8000/3 Uninterruptible Power System 6U INTL	AF432A
	HP Rack Mounted R12000 UPS (3-phase UPS)	
	HP R12000/3 Uninterruptible Power System 6U NA	AF429A
	HP R12000/3 Uninterruptible Power System 6U INTL	AF430A
NOTE: For more information on the HP 3-Phase UPS products please consult the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12857_div/12857_div.html		

HP Rack Series	HP 10000 G2 Series racks (Graphite Metallic)	
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Shock Pallet- for field racking (NA only)	AF007A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Crated	AF012A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF013A
	10636 G2 (36U) Rack Cabinet, without door - Shock Pallet	AF014A
	10622 G2 (22U) Rack Cabinet Pallet	AF021A
	10622 G2 (22U) Rack Cabinet Shock	AF022A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
	10842 G2 (42U) Rack Cabinet Pallet	AF041A
	10842 G2 (42U) Rack Cabinet Shock	AF042A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower .	

HP Rack Options	Keyboards and Monitors	
	TFT7600 Rackmount Keyboard Monitor US	AG052A



Additional Options

TFT7600 Rackmount Keyboard Monitor UK	AG053A
TFT7600 Rackmount Keyboard Monitor FR	AG055A
TFT7600 Rackmount Keyboard Monitor SP	AG057A
TFT7600 Rackmount Keyboard Monitor DEN	AG058A
TFT7600 Rackmount Keyboard Monitor NOR	AG059A
TFT7600 Rackmount Keyboard Monitor SWI	AG061A
TFT7600 Rackmount Keyboard Monitor BEL	AG063A
TFT7600 Rackmount Keyboard Monitor RUS	AG065A
TFT7600 Rackmount Keyboard Monitor INTL	AG066A
1U Rackmount Keyboard with USB, US	AG072A
1U Rackmount Keyboard with USB, UK	AG073A
1U Rackmount Keyboard with USB, GR	AG074A
1U Rackmount Keyboard with USB, FR	AG075A
1U Rackmount Keyboard with USB, ITL	AG076A
1U Rackmount Keyboard with USB, SP	AG077A
1U Rackmount Keyboard with USB, DEN	AG078A
1U Rackmount Keyboard with USB, NOR	AG079A
1U Rackmount Keyboard with USB, SE/FI	AG080A
1U Rackmount Keyboard with USB, SWI	AG081A
1U Rackmount Keyboard with USB, PORT	AG082A
1U Rackmount Keyboard with USB, BEL	AG083A
1U Rackmount Keyboard with USB, JPN2	AG084A
1U Rackmount Keyboard with USB, RUS	AG085A
1U Rackmount Keyboard with USB, INTL	AG086A

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

HP KVM Switch Options

2x1x16 IP Console Switch with Virtual Media	AF601A
4x1x16 IP Console Switch with Virtual Media	AF602A
2x16 Server Console Switch with Virtual Media	AF600A
PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
NOTE: Requires PS/2 and one USB port on server.	
BladeSystem c-Class KVM Interface Adapter - 1 pack	AF605A
HP Server console switch 0x2x8	AF616A
HP Server console switch 0x2x16	AF617A
PS/2 Interface Adapter, 1-pack	262588-B21
PS/2 Interface Adapter, 8-pack	262587-B21

NOTE: Cat5e cables are required to connect Interface Adapters to Consoles Switches. Cat52 cables can be found at the following URL:

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

HP 1x4 Console Switch	AF611A
HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A

Additional Options

HP USB Server Console Cable, 6 foot, 2-Pack	AF613A	
NOTE: required for supporting USB peripherals.		
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 Serial Console Server Options		
HP 16 Port Serial Console Server (worldwide)	AF101A	
HP 48 Port Serial Console Server (worldwide)	AF102A	
Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A	
Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A	
NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm .		
NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm .		
Rack options for HP 10000 G2 Series racks		
HP 10642 G2 Front Door ALL	AF009A	
HP 10636 G2 Front Door ALL	AF019A	
HP 10642 G2 (42U) Side Panels (set of two) (Graphite Metallic)	AF054A	
HP 10636 G2 (36U) Side Panels (set of two) (Graphite Metallic)	AF056A	
HP 10636 G2 Rear Extension Kit	AF060A	
600mm G2 Stabilizer Option Kit (Graphite)	AF062A	
600mm G2, Heavy Duty Stabilizer Option Kit (Graphite)	AF064A	
800mm G2, Heavy Duty Stabilizer Option Kit (Graphite)	AF068A	
NOTE: Supports 10000 G2 Series only.		
HP 10000 G2 Rack Grounding Kit	AF074A	
600W 10K G2 Rack Tie Down	AF076A	
NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower .		
HP Airflow Optimization		AF090A
HP 10000 Series Rack Airflow Optimization Kit		
NOTE: The Airflow Optimization kit is designed to prevent hot and cold air from mixing thus optimizing the temperature at which the chilled air enters the racked servers.		
NOTE: When configuring racks through Factory Express, a Rack Optimization kit will automatically ship with the rack. This kit is recommended for all other rack configurations also.		

Additional Options

Tape Storage

The following options are supported in an Enterprise Backup Solution (EBS) environment with the HP BladeSystem c-Class enclosure. Please visit: <http://www.hp.com/go/ebs> for complete compatibility details.

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library	AJ034A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library	AG326B
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A
HP StorageWorks MSL2024 2 LTO-3 Ultrium 920 SCSI Drive Library	AH170A
HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
HP StorageWorks MSL2024 2 LTO-2 Ultrium 448 SCSI Drive Library	AG117A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ035A
HP StorageWorks MSL4048 2 LTO-4 Ultrium 1840 SCSI Drive Library	AJ037A
HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library	AJ036A
HP StorageWorks MSL4048 2 LTO-4 Ultrium 1840 4GB FC Library	AJ038A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SCSI Tape Library	AH171A
HP StorageWorks MSL4048 2 LTO-3 Ultrium 920 SCSI Tape Library	AH172A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library	AG322A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 4GB FC Library	AG324B
HP StorageWorks MSL4048 2 LTO-3 Ultrium 960 SCSI Drive Library	AG323A
HP StorageWorks MSL4048 2 LTO-3 Ultrium 960 4GB FC Library	AG325B

NOTE: Please see the QuickSpecs for Technical Specifications and additional information or to create a complete solution; reference current compatibility information at: <http://www.hp.com/go/ebs>.

HP StorageWorks Virtual Library Systems

HP StorageWorks 12000 Virtual Library System Gateway Base Library	AH814A
HP StorageWorks 9030 Virtual Library System	AG306A
HP StorageWorks 6218 Virtual Library System	AH809A
HP StorageWorks 6227 Virtual Library System	AH810A
HP StorageWorks 6636 Virtual Library System	AH811A
HP StorageWorks 6653 Virtual Library System	AH812A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information or to create a complete solution. Reference current compatibility information at: <http://www.hp.com/go/ebs>.

HP Care Pack services

NOTE: HP Care Pack services for the BladeSystem c7000 enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP supported BladeSystem c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the BladeSystem c7000 enclosure Care Pack services.

Additional Options

NOTE: SAN/Fabric switches for the HP BladeSystem c-Class enclosure are not covered under the BladeSystem c7000 enclosure Care Packs, SAN/Fabric switches carry separate Care Packs. SAN/Fabric Switch Care Pack service level support should always be uplifted to match existing storage or server service level.

Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic UE477E

NOTE: Uplifts the Ethernet devices to the same level of service as the c-class enclosure.

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic UE478E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UE479E

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UE480E

Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic UE436E

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic UE437E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UE438E

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UE439E

Hardware Installation, Electronic U5988E

Software Operating Environment Care Packs

1 Year Microsoft operating environment software support 24x7 - 10 incidents U9269E

1 Year Red Hat operating system software support 24x7 - 10 incidents U3408E

1 Year SUSE operating system software support 24x7 - 10 incidents U9936E

NOTE: For more information, customer/resellers can contact:

<http://www.hp.com/hps/carepack/services/>

NOTE: SAN/Fabric switches for the HP BladeSystem c-Class enclosure are not covered under the BladeSystem c7000 enclosure Care Packs, SAN/Fabric switches carry separate Care Packs. SAN/Fabric Switch Care Pack service level support should always be uplifted to match existing storage or server service level.

Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic HA101A3#6Q6

NOTE: Uplifts the Ethernet devices to the same level of service as the c-class enclosure.

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic HA103A3#6Q6

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic HA104A3#6Q6

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic HA105A3#6Q6

Support Plus

Support Plus Service, 5-Day x 13-Hour Coverage HA109A3#6Q6

Support Plus 24

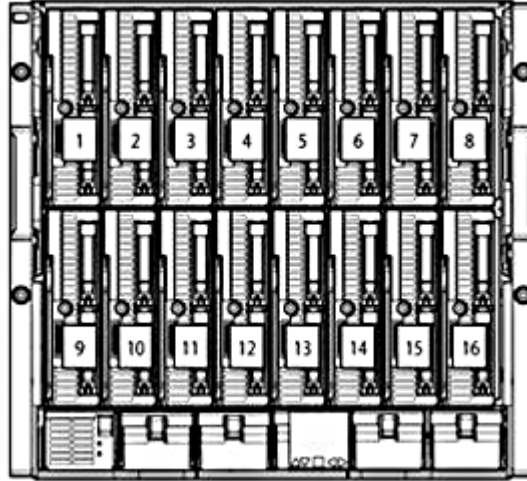
Support Plus 24 Service HA110A3#6Q6

Proactive 24 Service - Mission Critical proactive environment 24x7 4hr onsite HW support HA111A3#6Q6

Additional Options

Critical Service - Mission Critical proactive environment 6-Hour Call-to-Repair onsite HW support	HA112A3#6Q6
Hardware Installation, Electronic	HA113A1#5D2
Infrastructure Software On-site Service	
HP Insight Dynamics Recovery Management Installation & Startup Service, Fixed NOTE: Disaster Recovery requires both a Primary Site and Secondary Site, and supported HP SAN Storage at both sites to have "Continuous Access" implemented between the SAN. NOTE: All HP BladeSystem Matrix infrastructure ships with licensed disaster recovery protection for both physical and virtual servers, in coordination with data replication provided by StorageWorks EVA Continuous Access software. Disaster recovery protection can be achieved by implementing a secondary infrastructure at a remote location, and enabling storage replication between the two sites.	UK830E
HP Insight Dynamics Recovery Management Installation & Startup Service, Flexible	HA124A1#5FX
HP Install c7000 Enclosure and Server Build Service NOTE: This is recommended to assist with onsite racking and cabling of BladeSystem Matrix enclosures into a rack, particularly when BladeSystem Matrix kits are purchased without a rack.	UE494E
HP Install c7000 Enclosure and Server Build Service , Flexible NOTE: This is recommended to assist with onsite racking and cabling of BladeSystem Matrix enclosures into a rack, particularly when BladeSystem Matrix kits are purchased without a rack.	HA113A1#5FY
HP Additional Technical Assistance NOTE: This service provides the capability to customize tasks and activities including assistance with design, implementation, migration, and project management. NOTE: The following HP Education Services (sold in units) are highly recommended to ensure effective solution usage and knowledge.	HA334A1
HP BladeSystem Virtualization Tools using Insight Dynamics for ProLiant (28 units)	HG812S
HP Virtual Connect and Virtual Connect Enterprise Manager (VCEM)	HF837S
HP Insight Control: Introduction	HE643S
HP Insight Control: Deploying & Updating with Insight Control server deployment	HE645S
HP BladeSystem c-Class administration	HE646S

Half-height server blade bay numbering

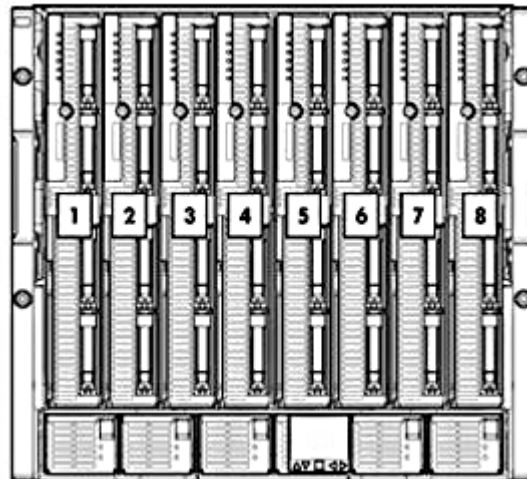


- 1. Device Bay 1
- 2. Device Bay 2
- 3. Device Bay 3
- 4. Device Bay 4
- 5. Device Bay 5
- 6. Device Bay 6
- 7. Device Bay 7
- 8. Device Bay 8

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

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

Full-height server blade bay numbering



- 1. Device Bay 1
- 2. Device Bay 2

- 5. Device Bay 5
- 6. Device Bay 6

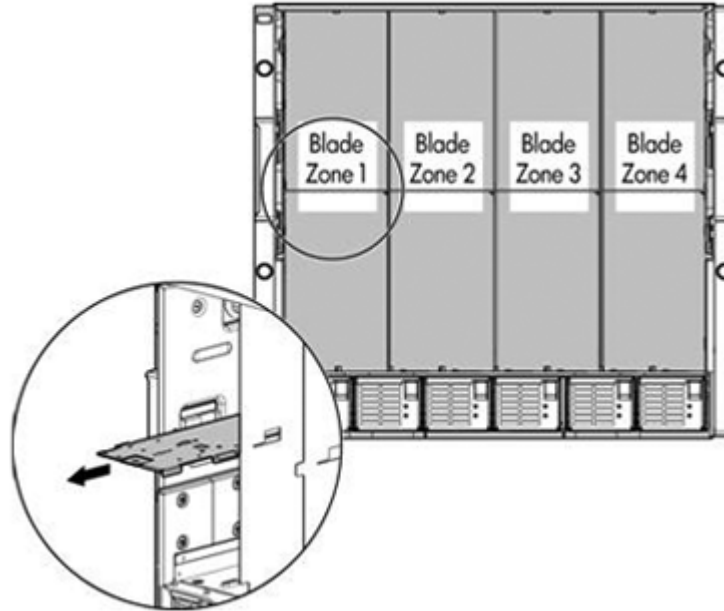
Technical Specifications

- 3. Device Bay 3
- 4. Device Bay 4

- 7. Device Bay 7
- 8. Device Bay 8

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

Mixed Configuration - Full Height and Half-Height Population rules



The BladeSystem 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: Storage blades and tape blades can be installed in the same zone as both full-height and half-height server blades, a bracket ships with each StorageWorks SB40c tape blade that allows a half-height blade to be mounted on top of the tape blade.

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

HP BladeSystem c7000 enclosure	Dimensions	Height	17.4 in (442 mm)
		Width	17.6 in (447.04 mm)
		Depth	32 in (813 mm)
	Shipping dimensions	Height	29.88 in (759 mm)
		Width	23.88 in (607 mm)
		Depth	39.88 in (1013 mm)
	Single-phase enclosure weight	Unboxed	192 lb (87 Kg)
		Shipping	235 lb (106.6 Kg)
	Three -phase enclosure NA/JPN weight	Unboxed	222 lb (100.7 Kg)
		Shipping	265 lb (120.2 Kg)
	Three-phase enclosure international weight	Unboxed	222 lb (100.7 Kg)
		Shipping	265 lb (120.2 Kg)
DC input enclosure weight	Unboxed	151 lb (68.5 Kg)	
	Shipping	194 lb (88 Kg)	

Technical Specifications

Maximum enclosure weight (approximate)	Unboxed	450 lb (204 Kg)
	Shipping	493 lb (223.6 Kg)
Temperature range	Operating	50° to 95° F (10° to 35° C)
	Non-Operating	-22° to 140° F (-30° to 60° C)
Relative humidity	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-Operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

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

Power	Input requirements - single-phase model	Rated input frequency	50 to 60 Hz		
			2250W PSU	Rated input voltage	100 to 120 VAC 200 to 240 VAC
				Rated input current per power supply	12.3A at 100 - 120 VAC 13.1 A at 200 VAC 12.6 A at 208 VAC 11.9 A at 220 VAC
		2400W PSU	Rated input power per power supply	2612 VA Max	
			Rated input voltage	200 to 240 VAC	
			Rated input current per power supply	13.9 A at 200 VAC 13.3 A at 208 VAC 12.6 A at 220 VAC	
	Power cords	Single Phase	Rated input power per power supply	2780 VA	
		3-Phase NA/JPN	IEC-320 C19-C20 1.22m (6 ft)		
		3-Phase International	2 x NEMA L15-30p 2.44m (10 ft)		
		-48V DC Power	2 x IEC-309 200/346 V - 240/415 V, 5-Pin, 6h 16A 2.44m (10 ft)		
		Terminal lug: 45DG 4AWG 1/4 2H			
		Two-hole lug 45 degree bend 0.25in. (6.4mm) stud hole size 0.63in. (16mm) hole spacing			
Output specifications (per power supply)	HP 2250W Hot-Plug Power Supply	200 - 240 VAC 2250 W			
	HP 2400W High Efficiency Hot-Plug Power Supply	100 - 120 VAC 960 W 200 - 240 VAC 2400 W			

Technical Specifications

Acoustic noise	HP 2250W -48V DC Hot- 2250W Plug Power Supply	
	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	7.5 Bels
	LpAm	57 dB
	Idle	
LWAd	7.5 Bels	
LpAm	57 dB	

Environmental-friendly products and approach **End-of-life management and recycling** Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Power Specifications

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

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