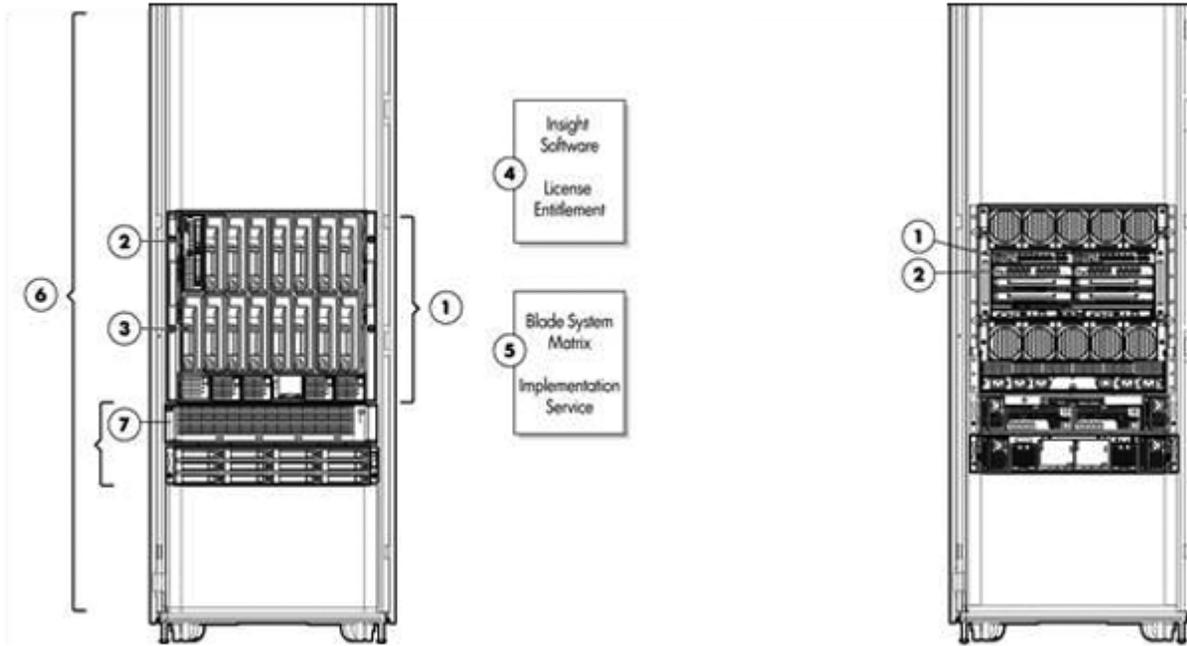


Overview

Starter Kit



Starter Kit - Front

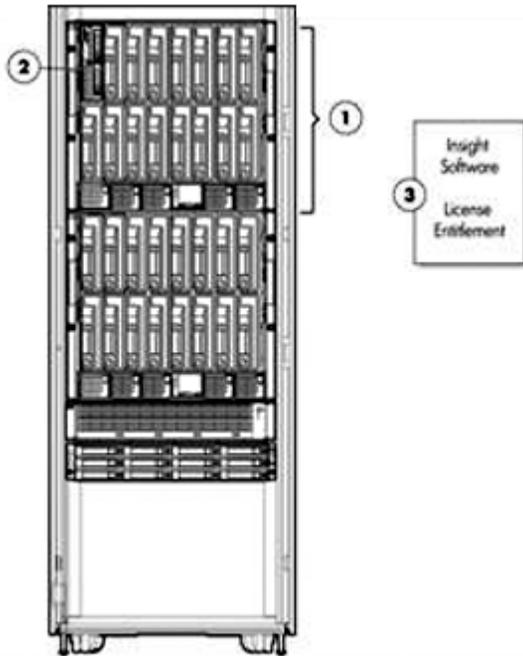
1. HP BladeSystem c7000 enclosure, single phase
2. Central Management Server (CMS):
Shown - HP ProLiant Blade-based CMS (optional)
Not Shown -- HP ProLiant DL360c G7 server CMS (recommended)
3. 15 half-height device bays available for populating with server blades
4. Complete Infrastructure Operating 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) - OR - HP Virtual Connect FlexFabric (single module)
2. HP Virtual Connect 8Gb 24-Port FC modules (redundant pair)- OR - HP Virtual Connect FlexFabric (single module)

Overview

Expansion Kit



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 for Insight software.
(Not shown) Onsite BladeSystem Matrix Expansion Kit Integration Implementation Service (for Expansion Kit orders purchased after an initial Matrix environment is implemented)



Expansion Kit - Rear

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

NOTE: All HP BladeSystem Matrix infrastructure ships with licensed disaster protection for both physical and virtual servers, in coordination with data replication provided by StorageWorks EVA or XP 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.

Overview

What's New

Updated for version 6.2, including:

- HP Insight Dynamics for ProLiant works with the new HP Cloud Service Automation (CSA) for Matrix, that includes Server Automation for OS/application provisioning and SiteScope for service monitoring
- FCoE support - Matrix will support automated provisioning with FCoE in the enclosure using the new FlexFabric Virtual Connect modules
- Matrix for HP-UX - Matrix will include infrastructure orchestration/full logical server support for Integrity Virtual Machines for the next generation Integrity
- Fail over a Windows logical server running on a ProLiant blade to a VMware virtual machine at a recovery site (p2v), and be able to recover it back to a ProLiant blade when reverted back to the primary site (v2p)
- Storage Provisioning Manager, which improves the storage provisioning process between the SAN administrator and the server administrator
- HP Cloud Maps to fast track the implementation of service catalogs - includes HP Cloud Map with Matrix for VMware Cloud Director
- Recommended CMS option: Matrix now offers additional flexibility by offering the HP ProLiant DL360 G7 as a rackmount central management server (CMS) option (PN 627805-B21). This is a default CMS server that can be substituted with another server if desired. Guidance included below on purchasing alternative servers.
- Enclosures and CMS now come with 3 Year, 24x7 hardware support (4 hour response)
- Software now comes with 3 Year, 24x7 Support & Updates (installation & configuration of software updates requires purchase of additional service)
- New Service to integrate additional purchased Expansion Kits into your existing Matrix environment

At A Glance

HP BladeSystem Matrix is the industry's first Converged Infrastructure solution delivering the benefits of shared services today which makes it an ideal backbone for private cloud. It provisions complex infrastructure and applications in minutes instead of months and reduces total cost of ownership up to 56% versus traditional infrastructure.

HP BladeSystem Matrix is designed to simplify the deployment of applications and business services by delivering IT capacity through pools of readily deployed resources. The Matrix operating environment accelerates provisioning with HP Cloud Maps, optimizes IT capacity across physical and virtual environments and ensures predictable delivery and service levels. It includes an integrated service designer, self-service portal, auto-provisioning capabilities, the tools to manage and optimize the resources pools as well as a recovery management solution. Through included Cloud APIs it can be easily customized to meet specific requirements enabling chargeback and billing, approval process integration, as well as other process automation capabilities.

BladeSystem Matrix is a pre-integrated hardware, software and services solution which is built on proven HP BladeSystem technologies such as Virtual Connect, Insight management software, ProLiant and Integrity blade servers and shared storage such as Fibre Channel SAN, with HP Services ensuring streamlined implementation and support.

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 above 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 or 8 HP Integrity full-height server blades (or a mix of any of these blades). 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. Expansion Kits ordered separately will come with the Matrix Expansion Kit Integration Implementation Service.

NOTE: Expansion Kits purchased must be co-located with the Starter Kit 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 EVA configuration is also purchased in the same rack 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 (TS) 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 section below.



HP BladeSystem Matrix

HP 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

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 for ProLiant server blades (physical to virtual, physical to physical, virtual to virtual, and virtual to physical)
- 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

HP 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 needed. These recommended services are listed in the "HP Care Pack services" 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 Matrix Starter Kit and Matrix Expansion Kits (included in the Starter Kit order) 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 or other HP StorageWorks SAN or an existing SAN
- NOTE:** HP StorageWorks EVA or XP with Continuous Access is required to fully implement disaster recovery capability with the recovery functionality included with BladeSystem Matrix for ProLiant server blades.
- 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)
 - 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://www.hp.com/services/insight> and <http://www.hp.com/learn/proliant>
 - BladeSystem Matrix demonstrations. See: <http://www.hp.com/go/matrix>

HP BladeSystem Matrix Expansion Kit Integration Implementation Service (onsite)

Ordering BladeSystem Matrix Expansion Kits after the initial BladeSystem Matrix Starter Kit order, includes the BladeSystem Matrix Expansion Kit Integration Implementation Service. Each BladeSystem Matrix Expansion Kit Integration Implementation Service will integrate up to four Matrix Expansion Kits to an existing Matrix customer environment. The onsite BladeSystem Matrix Expansion Kit Integration Implementation Service for the Expansion Kits consists of these steps:

- Upon delivery to customers site, unpack and inspect for damages
- Integrate Matrix Expansion Kits hardware in to customers environment, power, network cabling
 - Change the firmware versions to be compatible with the version requirements of the existing BladeSystem Matrix customer environment
- Configure up to one physical target server operating systems to boot from SAN
- Perform one of the BladeSystem Matrix demonstrations to verify the Expansion Kits integration is completed successfully. 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 4-, or 5- years across the entire hardware and software infrastructure from the following default included levels of warranty support:
 - Enclosure: Three-year, 24x7 (4 hour response) parts and labor, on-site limited global warranty. Certain restrictions and exclusions apply
 - Enclosure options: fans, power supplies, Onboard Administrator, covered with the enclosure warranty
 - HP Virtual Connect interconnects: 3 Year parts and labor, on-site regardless of the warranty period for the system in which they are installed
 - HP Insight software: 3 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

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



HP BladeSystem Matrix

HP BladeSystem Matrix Orchestration Environment (HP Insight software) Support

BladeSystem Matrix management software includes three years 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 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.

For more information, 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.



HP BladeSystem Matrix

HP 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

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.



HP BladeSystem Matrix

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 or XP 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 "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 "HP Care Pack services" 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)

HP BladeSystem Matrix Starter Kit
(Hardware Components)

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.

NOTE: The Starter Kit does not include a central management server or CMS (see BladeSystem c-Class server blades section below for CMS server).

HP BladeSystem Matrix Starter Kit with Virtual Connect FlexFabric (Hardware Components)

627806-B21

HP BladeSystem Matrix Starter Kit (Hardware Components) 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 FlexFabric 10Gb/24-port Module, 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. Four Ethernet uplinks per VC domain and four FC uplinks per Starter Kit recommended.
- BladeSystem Matrix documentation CD
- BladeSystem Matrix label attached to 10000 series rack door handle

NOTE: Following are the VC FlexFabric 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

HP 8Gb SW B-series FC SFP+

AJ716A

HP 8Gb LW B-series 10km FC SFP+

AJ717A

HP StorageWorks 8Gb Short Wave Fibre Channel SFP+

AJ718A

HP BladeSystem Matrix Starter Kit with Virtual Connect Flex-10 & 8 Gb FC (Hardware Components)

535888-B21

HP BladeSystem Matrix Starter Kit (Hardware Components) 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 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
- BladeSystem Matrix documentation CD
- BladeSystem Matrix label attached to 10000 series rack door handle

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

HP BladeSystem 10Gb SR SFP+

455883-B21



Ordering BladeSystem Matrix

	HP BladeSystem 10Gb LR SFP+	455886-B21
	HP BladeSystem 10Gb LRM SFP+	455889-B21
HP BladeSystem Matrix Starter Kit (Software Licenses and media)	<p>HP BladeSystem Matrix Starter Kit software licenses for ProLiant - HP Insight software NOTE: One (1) entitlement order number is provided. Includes the HP Insight software DVD media kit. 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. 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 licensing. HP-UX customers should order licenses for the HP-UX 11i v3 Virtual Server Environment OE (VSE-OE) or HP-UX 11i v3 Data Center OE (DC-OE) (see: www.hp.com/go/hpux).</p>	TC637A
HP BladeSystem Matrix Starter Kit (Implementation Service)	<p>HP BladeSystem Matrix Starter Kit - Implementation Service, Fixed HP BladeSystem Matrix Starter Kit - Implementation Service, Flexible NOTE: Includes the installation & configuration of any Matrix Expansion Kit included in the order.</p>	<p>UK831E HA115A1-5NL</p>
Central Management Server	<p>HP ProLiant DL360 G7 central management server (CMS) NOTE: Please see all NOTES below. NOTE: This is the default SKU for the Matrix central management server (CMS), to host the management software. It may be substituted with another server configured per notes below and per CMS sizing, scalability, and redundancy preferences. HP ProLiant DL360 G7 CMS server (PN 627805-B21) is configured as follows:</p> <ul style="list-style-type: none"> • Dual processors - Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/2/2/3/3) • 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 6G SAS 10K SFF DP HDDs • HP DL360 3 Year, 24x7 4 Hour Response Hardware support • HP Insight Control Software (with 3 Year, 24x7 hardware and software support) • QLogic HP StorageWorks 82Q PCI-e FC HBA Dual Port <p>NOTE: Considerations for Central Management Server (CMS) - choice of rack-mount or blade server: HP offers a choice of rack-mounted ProLiant server (DL or ML) or ProLiant server blade (BL) as central management server host for HP BladeSystem Matrix. HP recommends the rack-mounted ProLiant DL360 G7 as the CMS host (see configuration below) for those customers who desire to use all available and licensed enclosure blade bays for managed target blades and workloads. Alternatively, HP offers an optional BladeSystem Matrix CMS server blade SKU (570775-B22), which is a ProLiant BL460c G6 with 32GB memory. When multiple management server hosts are required for scalability and high availability or hosting partner management software, multiple ProLiant DL/ML servers or server blades (or even a combination of blade or rack-mounted servers) can be installed and configured to work together to manage the BladeSystem Matrix environment.</p>	627805-B21

This CMS will be devoted to running the BladeSystem Matrix management software;



Ordering BladeSystem Matrix

other management software such as VMware vCenter Server should be installed on a separate server.

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.

NOTE: If the recommended HP ProLiant DL360 G7 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 Insight Software 6.0 Support Matrix Chapter 2 "Central Management Server Requirements" for more information:

<http://h20000.www2.hp.com/bc/docs/support/SupportManual/c02048580/c02048580.pdf>.

NOTE: This CMS should be implemented on a 64-bit Windows operating system.

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 (4) HP ProLiant blades, two of which are directly provisioned as physical servers and two of which are virtual machine hosts. See separate section on "BladeSystem Matrix Starter Kit Implementation Service" for details. All shipping HP ProLiant c-Class blades are supported except the HP ProLiant BL2x220c server blades. In addition, HP Integrity BL860c, BL870c & BL8x0c i2 server blades are supported.

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, HP Integrity BL870c and HP Integrity BL8x0ci2, 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 licensing. HP Integrity c-Class server blades require separate licensing. HP-UX customers should order licenses for the HP-UX 11i v3 Virtual Server Environment OE (VSE-OE) or HP-UX 11i v3 Data Center OE (DC-OE)

NOTE: For additional information, please visit: www.hp.com/go/hpux.

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>.

NOTE: For QuickSpecs for BladeSystem c-Class interconnect options please visit:



Step 3: Select HP BladeSystem Matrix Expansion Kits

HP BladeSystem Matrix Expansion Kit (hardware plus 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.

NOTE: Add HP server blades and other recommended 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: Refer to the HP BladeSystem Matrix compatibility chart at:

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

HP BladeSystem Matrix Expansion Kit with Virtual Connect FlexFabric

627807-B21

HP BladeSystem Matrix 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 FlexFabric 10Gb/24-port Module, 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. Four Ethernet uplinks per VC domain and four FC uplinks per Starter Kit recommended.
- 3 Year, 24x7 4 Hour Response hardware support
- All necessary Insight software management software licenses for up to a fully populated c7000 enclosure with 16 ProLiant server blades with 3 year 24x7 Technical Support and Update Service
- 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

NOTE: Following are the VC FlexFabric 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

HP 8Gb SW B-series FC SFP+

AJ716A

HP 8Gb LW B-series 10km FC SFP+

AJ717A

HP BladeSystem Matrix Expansion Kit with Virtual Connect Flex-10 & 8 Gb FC

507021-B21

HP BladeSystem Matrix 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 modules, redundant pair



Ordering BladeSystem Matrix

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, redundant pair
- **NOTE:** Recommended Two [2] Fibre Channel SFP+ transceivers included with each module; therefore, 4 total transceivers per redundant pair.
- 3 Year, 24x7 4 Hour Response hardware support
- All necessary Insight software management software licenses for up to a fully populated c7000 enclosure with 16 ProLiant server blades with 1 year 24x7 Technical Support and Update Service
- 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

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
HP BladeSystem Matrix Expansion Kit - Implementation Service, Fixed	UU959E
HP BladeSystem Matrix Expansion Kit - Implementation Service, Flexible	HA115A1-5P9

HP BladeSystem Matrix
Expansion Kit
(Implementation Service)

NOTE: The Matrix Expansion Kit Integration Implementation Service is required for any purchased Expansion Kit being added to an existing Matrix environment. The Matrix Expansion Kit Integration Service supports the integration of up to four Matrix Expansion Kits into the existing Matrix environment.

Step 4: Select Recommended options for HP BladeSystem Matrix Kits

NOTE: Supported options may be added to the Starter or Expansion Kit as desired.

NOTE: For additional options, please refer to the "Additional Options" section below. For additional blade enclosures, interconnect options, and power subsystem options, please refer to 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

BladeSystem c-Class
target server blades

HP ProLiant server blades

NOTE: All shipping HP ProLiant c-Class blades are supported except the HP ProLiant BL2x220c server blades and workstation blades. For server blade information, please visit: <http://h18000.www1.hp.com/products/quickspecs/division/12534.html>

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 (4) HP ProLiant blades, two of which are directly provisioned as physical servers and two of which are virtual machine hosts. See separate section on "BladeSystem Matrix Starter Kit Implementation Service" for details.

NOTE: HP 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.



Ordering BladeSystem Matrix

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: All shipping HP Integrity 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 licensing. HP-UX customers should order licenses for the HP-UX 11i v3 Virtual Server Environment OE (VSE-OE) or HP-UX 11i v3 Data Center OE (DC-OE) For additional information, please visit: www.hp.com/go/hpux. Please refer to ordering information for Integrity Matrix at: www.hp.com/go/matrix.

Interconnect options

The Virtual Connect interconnect modules that are built in to the Starter and Expansion kits are not removable. Additional supported SAN and Ethernet options may be added to the remaining available interconnect bays (bays 5/6 and 7/8).

NOTE: For supported BladeSystem Matrix interconnect options, see the compatibility chart at: <http://www.hp.com/go/matrix>.

NOTE: 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 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.

Proactive Select - 3 year 24x7 30 credits per year, Flexible

HG921A3#12L

4 year 24x7 BL Matrix Software Support, Flexible

HA107A4#9K2

5 year 24x7 BL Matrix Software Support, Flexible

HA107A5#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 - 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

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

Support Plus 24 options for 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.

4 year Support Plus 24 BLc Matrix Expansion Kit Support, Fixed

UM860E

5 year Support Plus 24 BLc Matrix Expansion Kit Support, Fixed

UM861E

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 - 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



Ordering BladeSystem Matrix

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 - 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 - 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

Hypervisor Licensing

VMware vSphere Enterprise Plus licenses for BladeSystem Matrix

NOTE: Buy one per BladeSystem Matrix Starter/Expansion kit (supports up to 32 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 vSphere Installation & Startup Enterprise Service, Fixed	UK837E

VMware vCenter Server Standard for vSphere

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>

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.

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

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

HP StorageWorks 4400 Enterprise Virtual Array Starter Kit 10K, Factory integrated AJ699B

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:

HP StorageWorks EVA4400 (factory integrated)



Ordering BladeSystem Matrix

- 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 and transceivers/SFPs 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 service 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.

NOTE: Optional iSCSI storage solutions, including the following.

HP StorageWorks Virtualized SAN

HP StorageWorks P4300 G2 7.2TB SAS Starter SAN Solution (Small) BK716A

HP StorageWorks P4500 G2 10.8TB SAS Virtualization SAN Solution (Large) AX696A

Factory Express

HP Rack Signal Cable Interconnect Service HA865A1

NOTE: Required selection when storage or switching is Factory integrated in the same rack.

Step 5: Choose Additional Options for Factory Integration

Power Distribution Units **NOTE:** PDUs must be ordered in pairs for AC Feed redundancy.

HP Monitored Power Distribution Units

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



Ordering BladeSystem Matrix

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
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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.

HP PCI expansion blades PCI Expansion Blade	448018-B21
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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
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Signal Cables

Optical Cables

HP .5 m LC-LC Multi-Mode OM3 Fiber Optic Cable	AJ833A
HP 1 m LC-LC Multi-Mode OM3 Fiber Optic Cable	AJ834A
HP 2 m LC-LC Multi-Mode OM3 Fiber Optic Cable	AJ835A
HP 5 m LC-LC Multi-Mode OM3 Fiber Optic Cable	AJ836A
HP 15 m LC-LC Multi-Mode OM3 Fiber Optic Cable	AJ837A
HP 30 m LC-LC Multi-Mode OM3 Fiber Optic Cable	AJ838A
HP 50 m LC-LC Multi-Mode OM3 Fiber Optic Cable	AJ839A

NOTE: For VC Ethernet 10Gb uplinks

NOTE: For VC Fibre Channel uplinks

NOTE: For NC550SFP 10Gb dual port NIC uplinks in the Matrix CMS

NOTE: Optical transceivers/SFP+ must be purchased to connect these cables.

HP 10Gb SFP+ Copper cables

HP 0.5m SFP+ 10GbE Copper Cable	487649-B21
HP 1m SFP+ 10GbE Copper Cable	487652-B21
HP 3m SFP+ 10GbE Copper Cable	487655-B21
HP 5m SFP+ 10GbE Copper Cable	537963-B21
HP 7m SFP+ 10GbE Copper Cable	487658-B21

NOTE: For VC stacking between enclosures. 2 short links per Expansion kit, and 2 long links per Matrix rack (i.e. VC domain) is recommended.

NOTE: For VC Ethernet module uplinks (if Ethernet switch supports this uplink)

NOTE: For NC550SFP 10Gb dual port NIC uplinks in the Matrix CMS (if Ethernet switch supports this uplink)

1Gb Ethernet (CAT5e) cables

CAT5e cable, RJ45 to RJ45, M/M 1.2m (4ft)	C7533A
CAT5e cable, RJ45 to RJ45, M/M 2.1m (7ft)	C7535A
CAT5e cable, RJ45 to RJ45, M/M 4.3m (14ft)	C7536A
CAT5e cable, RJ45 to RJ45, M/M 7.6m (25ft)	C7537A
CAT5e cable, RJ45 to RJ45, M/M 15.2m (50ft)	C7542A



Ordering BladeSystem Matrix

NOTE: For OA enclosure linking (1 short link per Expansion Kit recommended)
NOTE: For Management port uplinks to Ethernet switch (2 for each Starter/Expansion Kit for redundant OA ports, 3 for each optional EVA4400 (AJ699B), 1 for each DL CMS for the iLO3 port recommended)
NOTE: For 1Gb NIC uplinks to new Matrix CMS SKU (optional, up to 4)
NOTE: For iSCSI device uplinks when present.

Power cords

HP C19 - C20 Jumper Cords

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

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 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

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



Additional Options

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
	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



Additional Options

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

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
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
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Additional Options

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	
HP 10000 Series Rack Airflow Optimization Kit	AF090A
NOTE: The Airflow Optimization kit is designed to prevent hot and cold air from mixing thus optimizing the temperature at which the chilled air enters the racked servers.	
NOTE: When configuring racks through Factory Express, a Rack Optimization kit will automatically ship with the rack. This kit is recommended for all other rack configurations also.	

HP 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.

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



Additional Options

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: www.hp.com/go/carepack	
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
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 Services	
HP Insight Dynamics Management Installation & Startup Service, Fixed	UK830E
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 or XP 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.	
HP Insight Dynamics Recovery Management Installation & Startup Service, Flexible	HA124A1#5FX
HP BladeSystem Matrix Upgrade (same CMS) Implementation Service	HA115A1#5PA
NOTE: This is a required Service to upgrade your Matrix environment to a later version.	
NOTE: This service performs an upgrade to the Matrix environment using the existing Matrix HP SIM Central Management Server.	
HP BladeSystem Matrix Upgrade (same CMS) Implementation Service	UU960E

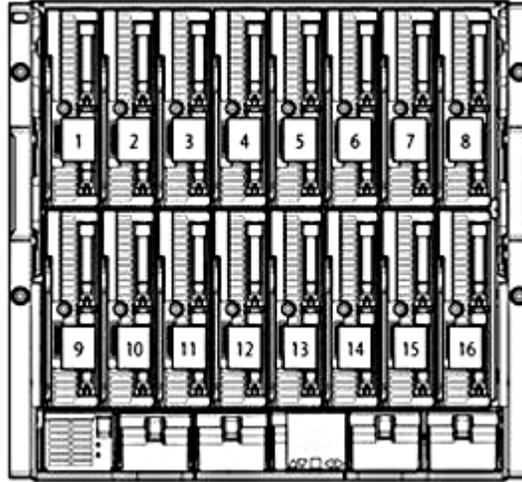


Additional Options

HP BladeSystem Matrix Upgrade (different CMS) Implementation Service	HA115A1#5PB
NOTE: This is a required Service to upgrade your Matrix environment to a later version.	
NOTE: This service performs an upgrade to the Matrix environment using requiring a different Matrix HP SIM Central Management Server (includes migrating data from the existing CMS to the new CMS).	
HP BladeSystem Matrix Upgrade (different CMS) Implementation Service	UU961E
HP BladeSystem Matrix Expansion Kit Integration Implementation Service	HA115A1#5P9
NOTE: This is a required Service to expand your existing Matrix environment by adding Matrix Expansion Kits.	
HP Install c7000 Enclosure and Server Build Service	UE494E
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.	
HP Install c7000 Enclosure and Server Build Service, Flexible	HA113A1#5FY
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.	
HP Additional Technical Assistance	HA334A1
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.	
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

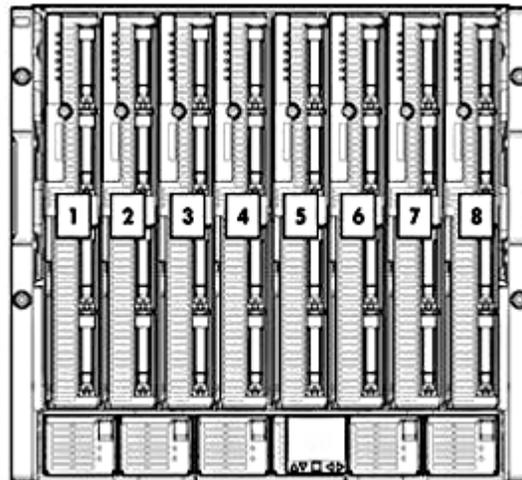


- 1. Device Bay 1
- 2. Device Bay 2
- 3. Device Bay 3
- 4. Device Bay 4
- 5. Device Bay 5
- 6. Device Bay 6
- 7. Device Bay 7
- 8. Device Bay 8

- 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

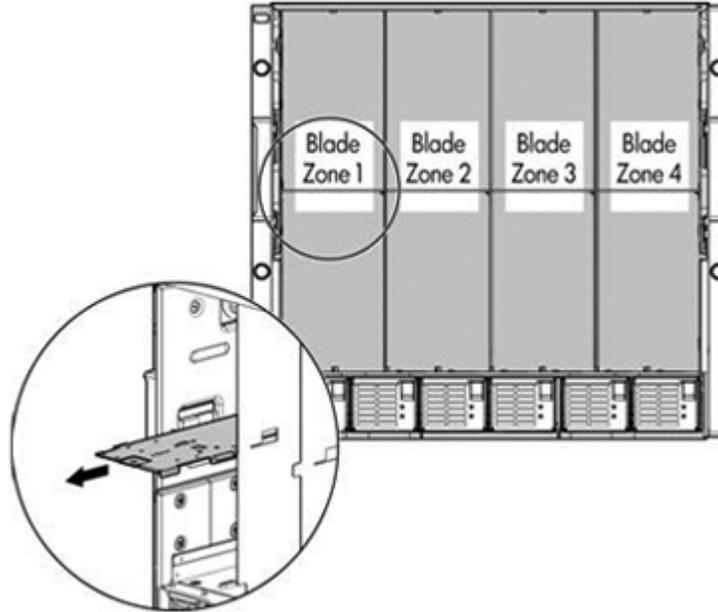
7. Device Bay 7

4. Device Bay 4

8. Device Bay 8

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

Mixed Configuration - Full Height and Half-Height Population rules



The 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		
			3-Phase NA/JPN	2780 VA	
			3-Phase International	2780 VA	
		-48V DC Power	IEC-320 C19-C20 1.22m (6 ft)		
			2 x NEMA L15-30p 2.44m (10 ft)		
			2 x IEC-309 200/346 V - 240/415 V, 5-Pin, 6h 16A 2.44m (10 ft)		
Output specifications (per power supply)	HP 2250W Hot-Plug Power Supply	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			
	HP 2400W High Efficiency Hot-Plug Power Supply	200 - 240 VAC 2250 W			
		100 - 120 VAC 960 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.
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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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