Starter Kit

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)

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.
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, 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](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.
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

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
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

**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 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 downloadable security updates. To initiate a subscription to receive future HP Security Bulletins via e-mail:

HP Worldwide Customer Service contact numbers are available at:

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**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.

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**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
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

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.

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.
**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.

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

**NOTE:** For additional HP Rack information please visit:

**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**

<table>
<thead>
<tr>
<th>HP 10000 G2 Series racks (Graphite Metallic)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10642 G2 (42U) Rack Cabinet - Pallet</td>
<td>AF001A</td>
</tr>
<tr>
<td>10642 G2 (42U) Rack Cabinet - Shock Pallet</td>
<td>AF002A</td>
</tr>
<tr>
<td>10642 G2 (42U) Rack Cabinet - Crated</td>
<td>AF003A</td>
</tr>
<tr>
<td>10642 G2 (42U) Rack Shock Pallet - for field racking (NA only)</td>
<td>AF007A</td>
</tr>
<tr>
<td>10636 G2 (36U) Rack Cabinet - Shock Pallet</td>
<td>AF011A</td>
</tr>
<tr>
<td>10636 G2 (36U) Rack Cabinet - Crated</td>
<td>AF012A</td>
</tr>
<tr>
<td>10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet</td>
<td>AF013A</td>
</tr>
<tr>
<td>10636 G2 (36U) Rack Cabinet, without door - Shock Pallet</td>
<td>AF014A</td>
</tr>
<tr>
<td>10622 G2 (22U) Rack Cabinet Pallet</td>
<td>AF021A</td>
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<tr>
<td>10622 G2 (22U) Rack Cabinet Shock</td>
<td>AF022A</td>
</tr>
<tr>
<td>10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet</td>
<td>AF034A</td>
</tr>
<tr>
<td>10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet</td>
<td>AF038A</td>
</tr>
<tr>
<td>10842 G2 (42U) Rack Cabinet Pallet</td>
<td>AF041A</td>
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<tr>
<td>10842 G2 (42U) Rack Cabinet Shock</td>
<td>AF042A</td>
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<td>10647 G2 (47U) Rack Cabinet - Pallet</td>
<td>AF031A</td>
</tr>
<tr>
<td>10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet</td>
<td>AF044A</td>
</tr>
<tr>
<td>10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet</td>
<td>AF045A</td>
</tr>
</tbody>
</table>

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

**NOTE:** For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.
Step 2: Select Required HP BladeSystem Matrix Starter Kit (Choose one of the following from each list unless otherwise noted)

**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** (Hardware Components)

- HP BladeSystem Matrix Starter Kit (Hardware Components) includes:
  - 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

  **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 Starter Kit** (Software Licenses and media)

- HP BladeSystem Matrix Starter Kit - 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.

**HP BladeSystem Matrix Starter Kit** (Implementation Service)

- HP BladeSystem Matrix Starter Kit - Implementation Service, Fixed
- HP BladeSystem Matrix Starter Kit - Implementation Service, Flexible

**BladeSystem c-Class server blades** (Central Management Server and Target Servers)

- Central management server (CMS), recommended default SKU - please see all NOTES below
- HP ProLiant BL460c G6

  **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.
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:

**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:

**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:

**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. 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:

Step 3: Choose Additional Recommended Options

**HP StorageWorks EVA4400**

*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.

**VMware vSphere**

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

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

---

**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:**

and **HP BladeSystem c-Class Interconnect Components QuickSpecs:**

**HP BladeSystem Matrix Expansion Kit**

<table>
<thead>
<tr>
<th>HP BladeSystem Matrix Expansion Kit</th>
<th>Includes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP BladeSystem c7000 enclosure, single-phase, single-phase with 6 power supplies, 10 fans</td>
<td></td>
</tr>
<tr>
<td>HP BladeSystem c7000 Onboard Administrator with KVM option, redundant pair</td>
<td></td>
</tr>
<tr>
<td>HP Virtual Connect Flex-10 10Gb Ethernet modules, redundant pair</td>
<td><strong>NOTE:</strong> No transceivers/SFPs included so that you can choose these options - need to add to order. See options for this in Note immediately below.</td>
</tr>
<tr>
<td>HP Virtual Connect 8Gb 24-Port FC Module for BladeSystem c-Class,</td>
<td></td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Support Level</th>
<th>Duration</th>
<th>Hours</th>
<th>Hardware Support Type</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Flexible</td>
<td>3 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA104A3#7FX</td>
</tr>
<tr>
<td>4 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Flexible</td>
<td>4 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA104A4#7FX</td>
</tr>
<tr>
<td>5 year 24x7 4hr BladeSystem Matrix Starter Hardware Support, Flexible</td>
<td>5 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA104A5#7FX</td>
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<tr>
<td>Support Plus 24 - 3 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible</td>
<td>3 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA110A3#7FX</td>
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<td>Support Plus 24 - 4 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible</td>
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<td>Support Plus 24 - 5 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible</td>
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<td>4 hours</td>
<td>HA110A5#7FX</td>
</tr>
<tr>
<td>Proactive 24 - 3 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible</td>
<td>3 years</td>
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<td>4 hours</td>
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<td>5 years</td>
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<td>4 hours</td>
<td>HA111A5#7FX</td>
</tr>
<tr>
<td>Critical Service - 3 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible</td>
<td>3 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA112A3#7FX</td>
</tr>
<tr>
<td>Critical Service - 4 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible</td>
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<tr>
<td>Critical Service - 5 year 24x7 4hr BladeSystem Matrix Hardware Support, Flexible</td>
<td>5 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA112A5#7FX</td>
</tr>
<tr>
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<td>3 years</td>
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<td>UM862E</td>
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<tr>
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<td>4 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>UM863E</td>
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<tr>
<td>5 year 24x7 BL Matrix Software Support, Fixed</td>
<td>5 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>UM864E</td>
</tr>
<tr>
<td>3 year 24x7 BL Matrix Software Support, Flexible</td>
<td>3 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA107A3#9K2</td>
</tr>
<tr>
<td>4 year 24x7 BL Matrix Software Support, Flexible</td>
<td>4 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA107A4#9K2</td>
</tr>
<tr>
<td>5 year 24x7 BL Matrix Software Support, Flexible</td>
<td>5 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA107A5#9K2</td>
</tr>
<tr>
<td>Support Plus 24 - 3 year Support Plus 24 BLc Matrix Software Support, Flexible</td>
<td>3 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA110A3#9K2</td>
</tr>
<tr>
<td>Support Plus 24 - 4 year Support Plus 24 BLc Matrix Software Support, Flexible</td>
<td>4 years</td>
<td>24/7</td>
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<tr>
<td>Support Plus 24 - 5 year Support Plus 24 BLc Matrix Software Support, Flexible</td>
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</tr>
<tr>
<td>Proactive 24 - 3 year Support Plus 24 BLc Matrix Software Support, Flexible</td>
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<td>24/7</td>
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</tr>
<tr>
<td>Proactive 24 - 4 year Support Plus 24 BLc Matrix Software Support, Flexible</td>
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<td>Critical Service - 3 year Support Plus 24 BLc Matrix Software Support, Flexible</td>
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<td>Critical Service - 4 year Support Plus 24 BLc Matrix Software Support, Flexible</td>
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<td>24/7</td>
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<tr>
<td>Critical Service - 5 year Support Plus 24 BLc Matrix Software Support, Flexible</td>
<td>5 years</td>
<td>24/7</td>
<td>4 hours</td>
<td>HA112A5#9K2</td>
</tr>
</tbody>
</table>
Step 1: Select Required HP BladeSystem Matrix Expansion Kit (Choose one of the following from each list unless otherwise noted)

**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.

**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.

**Expansion Kit**

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

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

**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:

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

**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 recommend 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.

<table>
<thead>
<tr>
<th>Support Plus 24 Option</th>
<th>SKU</th>
</tr>
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<tbody>
<tr>
<td>3 year Support Plus 24 BLc Matrix Expansion Kit Support, Fixed</td>
<td>UM859E</td>
</tr>
<tr>
<td>4 year Support Plus 24 BLc Matrix Expansion Kit Support, Fixed</td>
<td>UM860E</td>
</tr>
<tr>
<td>5 year Support Plus 24 BLc Matrix Expansion Kit Support, Fixed</td>
<td>UM861E</td>
</tr>
<tr>
<td>3 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
<td>HA110A3#9K1</td>
</tr>
<tr>
<td>4 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
<td>HA110A4#9K1</td>
</tr>
<tr>
<td>5 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
<td>HA110A5#9K1</td>
</tr>
<tr>
<td>Proactive 24 - 3 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
<td>HA111A3#9K1</td>
</tr>
<tr>
<td>Proactive 24 - 4 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
<td>HA111A4#9K1</td>
</tr>
<tr>
<td>Proactive 24 - 5 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
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<td>Critical Service - 3 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
<td>HA112A3#9K1</td>
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<td>Critical Service - 4 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
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<tr>
<td>Critical Service - 5 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
<td>HA112A5#9K1</td>
</tr>
<tr>
<td>24x7 4hr HW Support - 3 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
<td>HA104A3#9K1</td>
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<tr>
<td>24x7 4hr HW Support - 4 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
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<td>24x7 SW Support - 3 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
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<td>24x7 SW Support - 5 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible</td>
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</tbody>
</table>
### Step 3: Choose Additional Factory Integratable Options (one of the following from each list unless otherwise noted)

<table>
<thead>
<tr>
<th>VMware vSphere</th>
<th>NOTE: Buy one per BladeSystem Matrix Starter/Expansion kit (supports up to 32 processor sockets).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise Plus licenses for BladeSystem Matrix</td>
<td>VMware vSphere Enterprise Plus, 32 processor socket licenses, 3yr 24x7, no media TC290A</td>
</tr>
<tr>
<td></td>
<td>VMware vSphere Enterprise Plus, 32 processor socket licenses, 1yr 24x7, no media TC289A</td>
</tr>
<tr>
<td></td>
<td>VMware vSphere Installation &amp; Startup Enterprise Service, Flexible HA124A1#5NS</td>
</tr>
<tr>
<td></td>
<td>VMware vSphere Installation &amp; Startup Enterprise Service, Fixed UK837E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VMware vCenter Server Standard for vSphere</th>
<th>NOTE: 4.0 here refers to vSphere, not ESX 4.0. Reference the Matrix compatibility chart at: <a href="http://www.hp.com/go/matrixcompatibility">http://www.hp.com/go/matrixcompatibility</a> for the latest supported ESX versions.</th>
</tr>
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<tbody>
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</tr>
<tr>
<td></td>
<td>NOTE: This does not include VMware vCenter for vSphere implementation services, which may be purchased separately.</td>
</tr>
<tr>
<td></td>
<td>571780-B21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VMware vSphere Enterprise Plus individual licenses, per processor socket</th>
<th>NOTE: 4.0 here refers to vSphere, not ESX 4.0. Reference the Matrix compatibility chart at: <a href="http://www.hp.com/go/matrixcompatibility">http://www.hp.com/go/matrixcompatibility</a> for the latest supported ESX versions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP VMware vSphere 4.0 Enterprise Plus, 1 (one) processor socket license, 1yr 24x7, no media</td>
<td>NOTE: This 4.0 license can be used with prior ESX versions, for example, ESX 3.5.</td>
</tr>
<tr>
<td></td>
<td>NOTE: Includes technical support and updates for 1 year. For more information, see: <a href="http://h18006.www1.hp.com/products/servers/software/vmware/index.html">http://h18006.www1.hp.com/products/servers/software/vmware/index.html</a></td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>571774-B21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Microsoft Windows Server 2008 with Hyper-V licenses</th>
<th>NOTE: Includes 1 Hyper-V license.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Server 2008 Standard Edition OS Not Pre-Installed, FIO (includes 1 Hyper-V license)</td>
<td>468721-B21</td>
</tr>
<tr>
<td>Windows Server 2008 Enterprise Edition OS Not Pre-Installed, FIO (includes 4 Hyper-V licenses)</td>
<td>468723-B21</td>
</tr>
</tbody>
</table>
**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 C19 to C20)**

- HP 16A IEC320-C19 to C20 1.2m/4ft PDU cord, Grey  
  AF575A
- 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
## QuickSpecs

### HP BladeSystem Matrix

#### Additional Options

<table>
<thead>
<tr>
<th>HP PCI expansion blades</th>
<th>PCI Expansion Blade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOTE:</strong> Please see the QuickSpecs for Technical Specifications and additional information:</td>
<td><a href="http://h18000.www1.hp.com/products/quickspecs/12753_div/12753_div.html">http://h18000.www1.hp.com/products/quickspecs/12753_div/12753_div.html</a></td>
</tr>
<tr>
<td>HP PCI Express Mezzanine pass-thru card for HP BladeSystem</td>
<td>448018-B21</td>
</tr>
</tbody>
</table>

### Power cords

**HP C19 - C20 Jumper Cords**

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

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

- HP 16A 250V L6-30P/IEC320-C19 4.5m/15ft, NA
- HP 16A 250V NEMA L6-20P/IEC320-C19 3.6m/12ft, NA
- HP 16A 250V NBR 14136/IEC320-C19 2.5m/8ft, Brazil
- HP 16A 250V IRAM 2073/IEC320-C19 2.5m/8ft, AR
- HP 13A 250V BS-1363/IEC320-C19 3.6m/12ft, UK/Sing/HK
- HP 16A 250V CEE7-VII/IEC320-C19 3.6m/12ft, EU
- HP 15A 250V AS3112-3/IEC320-C19 3.6m/12ft, AU/NZ
- HP 16A 250V SABS 164/IEC320-C-9 3.6m/12ft, S.AFRICA
- HP 16A 250V CEI23-50/IEC320-C19 3.6m/12ft, ITALY/CHILE
- HP 16A 250V IEC309/IEC320-C19 3.6m/12ft, Denmark/Switzerland
- HP 16A 250V IS 1293/IEC320-C19 2.5m/8ft, INDIA
- HP 16A 250V SI-32/IEC320-C19 2.5m/8ft, ISRAEL
- HP 16A 250V GB1002/IEC320-C19 2.5m/8ft, CHINA
- HP 16A 250V CNS690/IEC320-C19 2.5m/8ft, TAWAIN
- HP 16A 250V stripped end/IEC320-C19 4.5m/15ft, WW
- HP 16A 250V SI-32/IEC320-C19 2.5m/8ft, ISRAEL

---
QuickSpecs

Additional Options

Uninterruptible Power Systems

HP Rack Mounted R5500 UPS (single-phase)
- HP R5500 VA 3U UPS, INTL
- HP R5500 VA 3U UPS, NA/JPN

NOTE: For more information on the R5500 please consult the QuickSpecs at:

HP Rack Mounted R8000 UPS (3-phase UPS)
- HP R8000/3 Uninterruptible Power System 6U NA
- HP R8000/3 Uninterruptible Power System 6U INTL

HP Rack Mounted R12000 UPS (3-phase UPS)
- HP R12000/3 Uninterruptible Power System 6U NA
- HP R12000/3 Uninterruptible Power System 6U INTL

NOTE: For more information on the HP 3-Phase UPS products please consult the
QuickSpecs at:

HP Rack Series

HP 10000 G2 Series racks (Graphite Metallic)
- 10642 G2 (42U) Rack Cabinet - Pallet
- 10642 G2 (42U) Rack Cabinet - Shock Pallet
- 10642 G2 (42U) Rack Cabinet - Crated
- 10642 G2 (42U) Rack Shock Pallet- for field racking (NA only)
- 10636 G2 (36U) Rack Cabinet - Shock Pallet
- 10636 G2 (36U) Rack Cabinet - Crated
- 10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet
- 10636 G2 (36U) Rack Cabinet, without door - Shock Pallet
- 10622 G2 (22U) Rack Cabinet Pallet
- 10622 G2 (22U) Rack Cabinet Shock
- 10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet
- 10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet
- 10842 G2 (42U) Rack Cabinet Pallet
- 10842 G2 (42U) Rack Cabinet Shock
- 10647 G2 (47U) Rack Cabinet - Pallet
- 10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet
- 10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet

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

NOTE: For additional information regarding Rack Cabinets, please see the following

HP Rack Options

Keyboards and Monitors
- TFT7600 Rackmount Keyboard Monitor US

NOTE: For more information on the TFT7600 please consult the QuickSpecs at:
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-Paack  AF612A
**QuickSpecs**

**Additional Options**

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP USB Server Console Cable, 6 foot, 2-Pack</td>
<td>AF613A</td>
</tr>
<tr>
<td><strong>NOTE:</strong> required for supporting USB peripherals.</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE:</strong> For additional information regarding KVM switches, Serial Console servers,</td>
<td></td>
</tr>
<tr>
<td>rack mount monitors, keyboards and all related options please see the following URL:</td>
<td></td>
</tr>
</tbody>
</table>

**HP Serial Console Server Options**

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 16 Port Serial Console Server (worldwide)</td>
<td>AF101A</td>
</tr>
<tr>
<td>HP 48 Port Serial Console Server (worldwide)</td>
<td>AF102A</td>
</tr>
<tr>
<td>Serial Adapter, RJ45-DB9 DCE Female, 1 Pack</td>
<td>AF103A</td>
</tr>
<tr>
<td>Serial Adapter, RJ45-DB9 DCE Female, 8 Pack</td>
<td>AF110A</td>
</tr>
<tr>
<td><strong>NOTE:</strong> Cat5e cables are required to connect Serial Adapters to Serial Console</td>
<td></td>
</tr>
<tr>
<td>Servers. Additional Serial Adapters and Cat5e cables can be found at the following</td>
<td></td>
</tr>
<tr>
<td>URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a></td>
<td></td>
</tr>
<tr>
<td><strong>NOTE:</strong> For additional information regarding KVM switches, Serial Console servers,</td>
<td></td>
</tr>
<tr>
<td>rack mount monitors, keyboards and all related options please see the following URL:</td>
<td></td>
</tr>
</tbody>
</table>

**Rack options for HP 10000 G2 Series racks**

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 10642 G2 Front Door ALL</td>
<td>AF009A</td>
</tr>
<tr>
<td>HP 10636 G2 Front Door ALL</td>
<td>AF019A</td>
</tr>
<tr>
<td>HP 10642 G2 (42U) Side Panels (set of two) (Graphite Metallic)</td>
<td>AF054A</td>
</tr>
<tr>
<td>HP 10636 G2 (36U) Side Panels (set of two) (Graphite Metallic)</td>
<td>AF056A</td>
</tr>
<tr>
<td>HP 10636 G2 Rear Extension Kit</td>
<td>AF060A</td>
</tr>
<tr>
<td>600mm G2 Stabilizer Option Kit (Graphite)</td>
<td>AF062A</td>
</tr>
<tr>
<td>600mm G2, Heavy Duty Stabilizer Option Kit (Graphite)</td>
<td>AF064A</td>
</tr>
<tr>
<td>800mm G2, Heavy Duty Stabilizer Option Kit (Graphite)</td>
<td>AF068A</td>
</tr>
<tr>
<td><strong>NOTE:</strong> Supports 10000 G2 Series only.</td>
<td></td>
</tr>
<tr>
<td>HP 10000 G2 Rack Grounding Kit</td>
<td>AF074A</td>
</tr>
<tr>
<td>600W 10K G2 Rack Tie Down</td>
<td>AF076A</td>
</tr>
<tr>
<td><strong>NOTE:</strong> For additional information regarding Rack Options, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a>.</td>
<td></td>
</tr>
</tbody>
</table>

**HP Airflow Optimization**

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 10000 Series Rack Airflow Optimization Kit</td>
<td>AF090A</td>
</tr>
<tr>
<td><strong>NOTE:</strong> The Airflow Optimization kit is designed to prevent hot and cold air from</td>
<td></td>
</tr>
<tr>
<td>mixing thus optimizing the temperature at which the chilled air enters the racked</td>
<td></td>
</tr>
<tr>
<td>servers.</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE:</strong> When configuring racks through Factory Express, a Rack Optimization kit will</td>
<td></td>
</tr>
<tr>
<td>automatically ship with the rack. This kit is recommended for all other rack</td>
<td></td>
</tr>
<tr>
<td>configurations also.</td>
<td></td>
</tr>
</tbody>
</table>
### 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.
**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  
**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  
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic  
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic

**Software Operating Environment Care Packs**

1 Year Microsoft operating environment software support 24x7 - 10 incidents  
1 Year Red Hat operating system software support 24x7 - 10 incidents  
1 Year SUSE operating system software support 24x7 - 10 incidents  
**NOTE:** For more information, customer/resellers can contact: http://www.hp.com/hps/carepack/services/

**Hardware Services On-site Service**

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic  
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic  
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic  
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic

Hardware Installation, Electronic

**Support Plus**

Support Plus Service, 5-Day x 13-Hour Coverage

**Support Plus 24**

Support Plus 24 Service  
Proactive 24 Service - Mission Critical proactive environment 24x7 4hr onsite HW support
Critical Service - Mission Critical proactive environment 6-Hour Call-to-Repair onsite HW support

Hardware Installation, Electronic

**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.
- HP Insight Dynamics Recovery Management Installation & Startup Service, Flexible
- 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.
- 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.
- 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.
- HP BladeSystem Virtualization Tools using Insight Dynamics for ProLiant (28 units)
- HP Virtual Connect and Virtual Connect Enterprise Manager (VCEM)
- HP Insight Control: Introduction
- HP Insight Control: Deploying & Updating with Insight Control server deployment
- HP BladeSystem c-Class administration

**NOTE:** The following HP Education Services (sold in units) are highly recommended to ensure effective solution usage and knowledge.
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
3. Device Bay 3
4. Device Bay 4
5. Device Bay 5
6. Device Bay 6
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.

### Dimensions

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

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

### Single-phase enclosure weight

<table>
<thead>
<tr>
<th>Unboxed</th>
<th>192 lb (87 Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping</td>
<td>235 lb (106.6 Kg)</td>
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</tbody>
</table>

### Three-phase enclosure NA/JPN weight

<table>
<thead>
<tr>
<th>Unboxed</th>
<th>222 lb (100.7 Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping</td>
<td>265 lb (120.2 Kg)</td>
</tr>
</tbody>
</table>

### Three-phase enclosure international weight

<table>
<thead>
<tr>
<th>Unboxed</th>
<th>222 lb (100.7 Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping</td>
<td>265 lb (120.2 Kg)</td>
</tr>
</tbody>
</table>

### DC input enclosure weight

<table>
<thead>
<tr>
<th>Unboxed</th>
<th>151 lb (68.5 Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping</td>
<td>194 lb (88 Kg)</td>
</tr>
</tbody>
</table>
## 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

<table>
<thead>
<tr>
<th>Input requirements - single-phase model</th>
<th>Rated input frequency</th>
<th>50 to 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 2250W PSU</td>
<td>Rated input voltage</td>
<td>100 to 120 VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 to 240 VAC</td>
</tr>
<tr>
<td></td>
<td>Rated input current per power supply</td>
<td>12.3A at 100 - 120 VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.1 A at 200 VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.6 A at 208 VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11.9 A at 220 VAC</td>
</tr>
<tr>
<td>HP 2400W PSU</td>
<td>Rated input voltage</td>
<td>200 to 240 VAC</td>
</tr>
<tr>
<td></td>
<td>Rated input current per power supply</td>
<td>13.9 A at 200 VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.3 A at 208 VAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.6 A at 220 VAC</td>
</tr>
<tr>
<td></td>
<td>Rated input power per power supply</td>
<td>2612 VA Max</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2780 VA</td>
</tr>
</tbody>
</table>

#### Power cords
- **Single Phase**: IEC-320 C19-C20 1.22m (6 ft)
- **3-Phase NA/JPN**: 2 x NEMA L15-30p 2.44m (10 ft)
- **3-Phase International**: 2 x IEC-309 200/346 V - 240/415 V, 5-Pin, 6h 16A 2.44m (10 ft)
- **-48V DC Power**: Terminal lug: 45DG 4AWG 1/4 2H

#### 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
- **HP 2400W High Efficiency Hot-Plug Power Supply**: 200 - 240 VAC 2400 W
Acoustic noise

Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).

<table>
<thead>
<tr>
<th>State</th>
<th>LWAd</th>
<th>LpAm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idle</td>
<td>7.5 Bels</td>
<td>57 dB</td>
</tr>
</tbody>
</table>

Environmental-friendly products and approach

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. 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 website 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.
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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