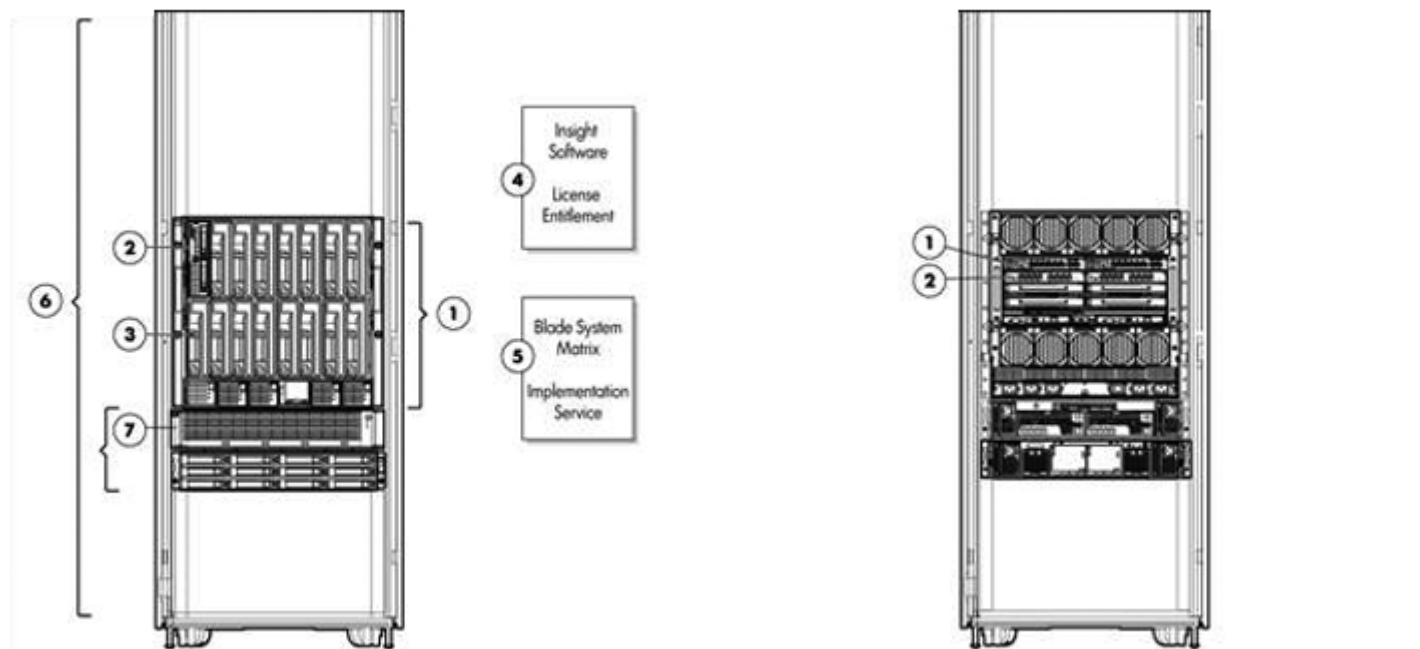


Overview

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 DL360p Gen8 server CMS (recommended)
3. 16 half-height device bays available for populating with server blades
4. Complete Infrastructure Operating Environment licenses (Insight software)
5. Onsite CloudSystem 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 P6300 Enterprise Virtual Array Starter Kit

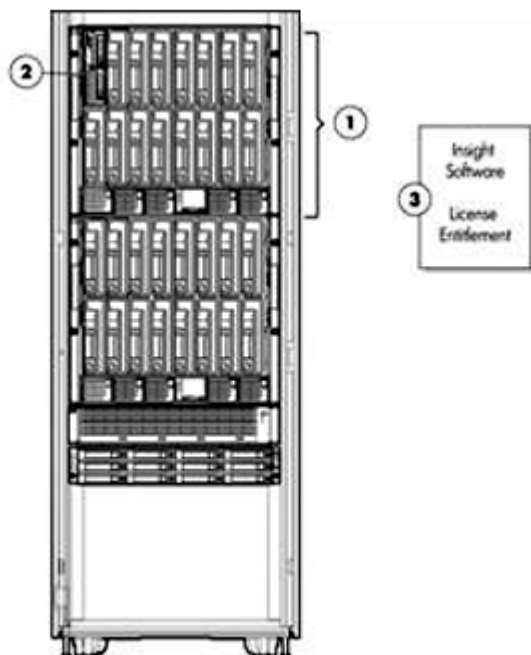
Starter Kit - Rear

1. HP Virtual Connect Flex-10 10-Gb Ethernet modules (redundant pair) - OR - HP Virtual Connect FlexFabric modules (redundant pair)
2. HP Virtual Connect 8Gb 24-Port FC modules (redundant pair)- OR - Interconnect bays 3 & 4 available for additional HP Virtual Connect FlexFabric modules (redundant pair)

Expansion Kit



Overview



Expansion Kit - Front

1. HP BladeSystem c7000 enclosure, single phase
2. 16 half-height device bays available for populating with server blades (15 open bays using Matrix blade CMS)
3. Complete Infrastructure Operating Environment licenses for Insight software.
(Not shown) Onsite CloudSystem 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 modules (redundant pair)
2. HP Virtual Connect 8Gb 24-Port FC modules (redundant pair)- OR - Interconnect bays 3 & 4 available for additional HP Virtual Connect FlexFabric modules (redundant pair)

NOTE: All HP CloudSystem Matrix infrastructure ships with licensed disaster protection for both physical and virtual servers, in coordination with data replication provided by 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 7.0, including these new benefits:

Leading cloud functionality:

- Unique bursting capabilities to SAVVIS
- Scale to 10,000 VMs with federated CMS
- VLAN separation for secure multi-tenancy

Increased infrastructure automation:

- Automated, on-demand storage provisioning to select HP EVA and 3PAR SAN arrays
- Bi-directional failover for more flexible & efficient disaster recovery
- 3PAR FC disaster recovery integration for ProLiant

Expanded cloud eco-system

- CloudSystem Developers Community
 - Expanded Cloud Map portfolio
 - HP Next Generation ProLiant support
 - Matrix Operating Environment
-

At A Glance

If your company is like most companies, you have been adding servers, storage, and networking devices to keep pace with your business demands. You could be spending upwards of 70 percent of your IT budget on operations and maintenance, which means you are spending 30 percent or less on innovation that is critical to growing your business. You don't have to be captive to unmanageable IT sprawl. Solutions are available today to help you realign traditional technology silos into virtual pools shared by any application and flexible enough to change as business needs evolve.

By moving beyond a product-centric approach towards a service-centric private cloud model, you can simplify your IT infrastructure. You can build a virtualized, highly automated environment with pools of shared resources that can be leveraged on demand. In addition, you can safely burst workloads to local and public cloud resources when you need additional computational headroom.

HP CloudSystem Matrix is the ideal platform for private cloud and IaaS that enables you to provision infrastructure and applications in minutes rather than months, resulting in total cost of ownership (TCO) savings of up to 56 percent. Built on HP Converged Infrastructure and the optional HP Cloud Service Automation for Matrix, CloudSystem Matrix offers a self-service infrastructure portal for auto-provisioning and built-in lifecycle management to optimize infrastructure, monitor applications, and increase uptime for your cloud and traditional IT.

Whether you are planning to take your first step towards building a shared services environment, or are ready to build your private cloud to deliver IaaS, consider the CloudSystem Matrix. Investing now means immediate savings and the opportunity to channel your spending toward innovation. CloudSystem Matrix can be easily upgraded to CloudSystem Enterprise for advanced application to infrastructure lifecycle management or to CloudSystem Service Provider for service aggregation for public or hosted private clouds. For more information on HP CloudSystem offerings, visit www.hp.com/go/cloudsystem.

CloudSystem Matrix is optimized for HP ProLiant and HP Integrity servers as well as HP storage and HP networking but also supports third-party x86 servers, networking, and storage. Supported operating systems are Windows®, Linux and HP-UX, and supported hypervisors include VMware, Microsoft® Hyper-V, and Integrity VMs. Matrix Operating Environment.

For more information above HP CloudSystem 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>



Overview

For more information about HP Storage, see: www.hp.com/go/storage

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

For more information about Cloud Service Automation for Matrix, see: www.hp.com/go/csa4matrix



How to order HP CloudSystem Matrix

Ordering HP CloudSystem Matrix

The method for purchasing HP CloudSystem Matrix is simple. Start by ordering a HP CloudSystem 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 CloudSystem 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.

NOTE: Cloud Service Automation for Matrix software (CSA for Matrix) is an optional component and is not included with the base package CloudSystem Matrix.

With all HP CloudSystem 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 CloudSystem Matrix kits and the supported blades and options purchased with those kits) to the latest current CloudSystem Matrix firmware release set. This ensures that the CloudSystem 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 CloudSystem 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 an 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 CloudSystem 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 CloudSystem Matrix Starter Kit Implementation Service is detailed in a section below.



HP CloudSystem Matrix

HP CloudSystem Matrix Infrastructure Operating Environment (HP Insight software)

The CloudSystem 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 Cloud Service Automation Software for Matrix (optional software add-on)

HP Cloud Service Automation for Matrix is an optional add-on that builds on the HP CloudSystem Matrix platform. HP Cloud Service Automation for Matrix delivers the following key capabilities beyond the standard Matrix platform:

- Application provisioning that enables IT to provision platforms and applications to the appropriate infrastructure quickly and easily—all through one service template definition
- Agentless monitors that are automatically deployed when new services are delivered through Matrix, helping to ensure the availability and performance of distributed IT infrastructures and application components
- Complete lifecycle management for physical and virtual servers and applications—from establishing a baseline to provisioning, patching, configuration management, and compliance assurance

HP Cloud Service Automation for Matrix is based on our industry-leading products:

- HP Server Automation software provides complete lifecycle management for physical and virtual servers and applications—from establishing a baseline to provisioning, patching, configuration management, and compliance assurance.
- HP SiteScope software is an agentless monitoring solution that ensures the availability and performance of distributed IT infrastructure and application components.

The solution is built on the industry's first converged infrastructure platform, HP CloudSystem Matrix, and allows you to instantly adjust to dynamic business demands and transform the economics of your data



HP CloudSystem Matrix

center.

NOTE: Cloud Service Automation for Matrix (CSA for Matrix) comprises two separate software applications, Server Automation and SiteScope. Customers wishing to add CSA for Matrix to their environment would require separate CMS host systems for both Server Automation and SiteScope. Customers can refer to the CSA for Matrix configuration guide and support matrix for information on other pre-requisites for installing CSA for Matrix.

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

In addition to the CloudSystem 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 CloudSystem 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 EVA P6000 or other HP SAN or an existing SAN

NOTE: HP EVA or XP with Continuous Access is required to fully implement disaster recovery capability with the recovery functionality included with CloudSystem 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
 - 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 CloudSystem 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>
 - CloudSystem Matrix demonstrations. See: <http://www.hp.com/go/matrix>



HP CloudSystem Matrix

HP CloudSystem Matrix Expansion Kit Integration Implementation Service (onsite)

Ordering CloudSystem Matrix Expansion Kits after the initial CloudSystem Matrix Starter Kit order, includes the CloudSystem Matrix Expansion Kit Integration Implementation Service. Each CloudSystem Matrix Expansion Kit Integration Implementation Service will integrate up to four Matrix Expansion Kits to an existing Matrix customer environment. The onsite CloudSystem 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 CloudSystem Matrix customer environment
- Configure up to one physical target server operating systems to boot from SAN
- Perform one of the CloudSystem Matrix demonstrations to verify the Expansion Kits integration is completed successfully. See: <http://www.hp.com/go/matrix>

HP CloudSystem Matrix Conversion Services

If you've invested in HP BladeSystem solutions, you can protect and build on them with HP CloudSystem Matrix Conversion Services. These services, performed by HP Services experts, let you move from the HP BladeSystem investment you already have, to a complete, fully supported HP CloudSystem Matrix environment. HP CloudSystem Matrix Conversion Services provide a cost-effective way to start realizing the benefits of shared services and private cloud today.

- **Step 1. Initial Assessment** -- HP experts will assess your inventory and report on your existing HP BladeSystem equipment - the equipment you would like converted to HP CloudSystem Matrix.
- **Step 2. Site-Specific Preparation** -- This step will vary greatly depending on the equipment to be converted. This may include the purchase and installation of additional required hardware and software in preparation for the Conversion to Matrix. This might include some of the following: redundant Virtual Connect and Matrix Operating Environment Matrix Operating Environment licenses and associated hardware and software support for a minimum of 3 years, 24x7 support. (Variable duration.)
- **Step 3. Conversion to HP CloudSystem Matrix** -- HP experts will perform the conversion.

NOTE: For additional information, see: <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-2191ENW.pdf>

Warranty services

The support provided for CloudSystem Matrix is an uplift from the standard warranty to include 24x7 4hr onsite response for Matrix hardware and 2 hr response for software. Matrix customers will have a system identifier for CloudSystem Matrix that, when provided to the call center by the customer, will route the call to a specially trained team that can expertly support CloudSystem Matrix specifically as well as the necessary software and firmware revisions to support it.

The HP CloudSystem 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 CloudSystem 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



HP CloudSystem Matrix

- 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 CloudSystem Matrix Operating Environment (HP Insight software) Support

CloudSystem 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 CloudSystem 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 Worldwide Customer Service contact numbers are available at: <http://www.hp.com/country/us/en/wwcontact.html>.



HP CloudSystem Matrix

HP CloudSystem Matrix -- Extended Infrastructure -- HP Matrix Operating Environment extends its software functionality beyond HP CloudSystem Matrix across select HP ProLiant, HP Integrity and 3rd party servers.

CloudSystem Matrix support for this extended infrastructure includes all of the capabilities of HP Matrix Operating Environment with the exception of some physical server deployment and management capabilities. All capabilities of HP Matrix Operating Environment are supported for HP BladeSystem servers with Virtual Connect.

CloudSystem Matrix support of extended infrastructure provides for the Matrix CMS to control all of the capabilities of Blade System Matrix, as well as those of Matrix Operating Environment, which provides for VM provisioning and recovery on non-blade servers.

NOTE: See the [HP Matrix Operating Environment for ProLiant QuickSpecs](http://h18000.www1.hp.com/products/quickspecs/13050_na/13050_na.html) for additional information: http://h18000.www1.hp.com/products/quickspecs/13050_na/13050_na.html

Blade System Matrix for supported extended virtual machine managed nodes is listed in the HP Insight Software 6.3 Support Matrix document for Matrix Operating Environment. <http://h20000.www2.hp.com/bc/docs/support/SupportManual/c02537423/c02537423.pdf>

Customer support for Matrix extended infrastructure servers is handled the same way as HP Matrix Operating Environment standalone software. Matrix extended infrastructure is subject to the same software licensing requirements as Matrix Operating Environment.

NOTE: See the [HP Matrix Operating Environment for ProLiant QuickSpecs](http://h18000.www1.hp.com/products/quickspecs/13050_na/13050_na.html) for more details http://h18000.www1.hp.com/products/quickspecs/13050_na/13050_na.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 ProLiant Instant Capacity Program

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

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



HP CloudSystem Matrix

HP Utility Ready Computing on Matrix

HP Utility Ready Computing blades (URB) are pay-for-use infrastructure that resides at your site, billed monthly by HP based on metered power-on time, and transfers cost of blade servers and associated infrastructure from CapEx to OpEx in an alternative way from a traditional lease.

The URB Advantage:

- Aligning costs with utilization
- Reduce upfront expenses
- React instantly to changing demands
- Effective Chargeback mechanism
- And it's at your site, you maintain control!

With CloudSystem Matrix 6.3, customers can add Utility Ready Computing blades to their Matrix enclosures and leverage the benefits offered by utility ready computing.

NOTE: Customers cannot mix non-URC blades with URC blades same in same enclosure, they should be housed in separate enclosures.

NOTE: For additional information, please see:

http://h18000.www1.hp.com/products/ blades/components/utility.html?jumpid=reg_R1002_USEN

Factory Express Portfolio for Servers and Storage

For HP CloudSystem Matrix, HP Factory Express services are added if the EVA P6000 SAN is purchased with the CloudSystem Matrix Starter Kit. If other custom requirements or intents are required for a given customer's CloudSystem 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 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 CloudSystem 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: CloudSystem 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 CloudSystem Matrix

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

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

NOTE: All HP CloudSystem Matrix infrastructure ships with licensed disaster recovery protection for both physical and virtual servers, in coordination with data replication provided by 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 CloudSystem Matrix enclosures in a rack prior to HP arriving onsite to complete the CloudSystem Matrix Implementation Service. You may purchase the HP Install c7000 Enclosure and Server Build Service to assist with onsite racking and cabling of CloudSystem 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)	
	HP 10642 G2 Shock Universal Rack	AF002A
	HP 10642 G2 Crated Universal Rack	AF003A
	HP 10636 G2 Pallet Universal Rack	AF011A
	HP 10636 G2 Shock Universal Rack	AF012A
	HP 10636 G2 Crated Universal Rack	AF013A
	HP 10636 G2 with Extension Shock Rack	AF014A
	HP 10622 G2 Pallet Universal Rack	AF021A
	HP 10622 G2 Shock Universal Rack	AF022A
	HP 10842 G2 Pallet Universal Rack	AF041A
	HP 10842 G2 Shock Universal Rack	AF042A
	HP 10647 G2 Pallet Universal Rack	AF031A
	HP Intelligent Series Racks	
	HP 642 1075mm Shock Intelligent Series Rack	BW904A
	HP 642 1075mm Pallet Intelligent Series Rack	BW903A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
	http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html	
	or	
	http://h18004.www1.hp.com/products/quickspecs/14223_na/14223_na.html	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower .	

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



Ordering CloudSystem Matrix

HP CloudSystem Matrix Starter Kit

NOTE: Starter Kit default components means HP ordering systems will default these selections when any unique HP CloudSystem 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).

Hardware Components

HP CloudSystem Matrix FlexFabric Starter Kit with 3 year 24x7 Support 627806-B21

HP CloudSystem 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: When HP CloudSystem Matrix FlexFabric enclosures are configured with any HP ProLiant Generation 6 (G6) blades, two additional HP Virtual Connect FlexFabric 10Gb/24-port Modules must be placed in interconnect bays 3 and 4. When these additional FlexFabric modules are placed in interconnect bays 3 and 4, each blade in that enclosure requires the NC551m Dual Port FlexFabric 10Gb Converged Network Adapter (CNA) (PN 580151-B21) or HP NC553m 10Gb 2-port FlexFabric Adapter (PN 613431-B21).

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.
- CloudSystem Matrix documentation CD
- CloudSystem Matrix label attached to 10000 series rack door handle

NOTE: Following are the VC FlexFabric transceiver/SFP options.

HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Option 455883-B21

HP BladeSystem c-Class 10Gb Long Range Small Form-Factor Pluggable Option 455886-B21

HP BladeSystem c-Class 10Gb Long Range Mode Small Form-Factor Pluggable Option 455889-B21

HP BLc Virtual Connect 1Gb SX Small Form Factor Pluggable Option Kit 453151-B21

HP BLc Virtual Connect 1Gb RJ-45 Small Form Factor Pluggable Option Kit 453154-B21

HP 8Gb Shortwave B-series Fibre Channel 1 Pack SFP+ Transceiver AJ716A

HP 8Gb Long Wave B-series 10km Fibre Channel 1 Pack SFP+ Transceiver AJ717A

HP 8Gb Short Wave Fibre Channel SFP+ 1 Pack AJ718A

HP CloudSystem Matrix Flex-10 Starter Kit with 3 year 24x7 Support 535888-B21

HP CloudSystem 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
- CloudSystem Matrix documentation CD
- CloudSystem Matrix label attached to 10000 series rack door handle

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



Ordering CloudSystem Matrix

HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Option	455883-B21
HP BladeSystem c-Class 10Gb Long Range Small Form-Factor Pluggable Option	455886-B21
HP BladeSystem c-Class 10Gb Long Range Mode Small Form-Factor Pluggable Option	455889-B21

Software Licenses and media

HP Matrix Operating Environment SW for 16 Server and VCEM for c7000 Enclosure with 3yr 24x7 Support	TK637A
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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 CloudSystem 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).

Implementation Service

HP BladeSystem Matrix Starter Kit - Implementation Service	UK831E
HP BladeSystem Matrix Starter Kit - Implementation Service, Flexible	HA115A1-5NL

NOTE: Includes the installation & configuration of any Matrix Expansion Kit included in the order.

Central Management Server

HP CloudSystem Matrix Central Mgmt Svr based on DL360p Gen8 32GB 2P Server	666224-B21
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NOTE: This is the default part number 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 DL360p Gen8 CMS server (PN 666224-B21) is configured as follows:

- Dual processors - Intel® Xeon® E5-2640 processor
- 32 GB (4 x 8GB) 1Rx4 PC3-12800R-11 Kit Registered DIMMs
- HP P-Series Smart Array 1GB Flash Based Write Cache for P-series
- FlexFabric 10Gb 2P 554FLR-SFP+ Adapter Ethernet 1Gb 4-port 331T Adapter
- 2x HP 300GB 6G SAS 15K 2.5in SC ENT HDDs
- HP 82Q 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter
- HP 9.5mm SATA JB DVDRW Optical Drive
- HP DL360 3 Year, 24x7 4 Hour Response Hardware support
- HP Insight Control Software (with 3 Year, 24x7 hardware and software support)

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) as central management server host for HP CloudSystem Matrix. HP recommends the rack-mounted ProLiant DL360p Gen8 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. 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



Ordering CloudSystem Matrix

rack-mounted servers) can be installed and configured to work together to manage the CloudSystem Matrix environment.

This CMS will be devoted to running the CloudSystem Matrix management software; 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 DL360p Gen8 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 6.3 Support Matrix Chapter 2 "Central Management Server Requirements" for more information:

<http://h20000.www2.hp.com/bc/docs/support/SupportManual/c02537423/c02537423.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 "CloudSystem 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/north_america/12534.html

NOTE: HP ProLiant server blades should be configured to connect via the Virtual Connect modules included in the CloudSystem Matrix kits. See the section below on Mezzanine options for further details.

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/north_america/north_america.html#12391.

NOTE: The management software licenses packaged with HP CloudSystem 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.

Federated Central
Management Servers for

To scale beyond a single CloudSystem central management server (CMS) server node limits (physical+virtual), a federated CMS model has been developed.



Ordering CloudSystem Matrix

CloudSystem Matrix

For more information on CloudSystem Matrix federated CMS implementations please refer to: <http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA3-4721ENW&cc=us&lc=en>

HP requires the following components when implementing a federated CMS solution:

- Additional CMS servers - HP recommends HP CloudSystem Matrix Central Mgmt Svr based on DL360p Gen8, 32GB, 2P Server (PN 66224-B21) as each CMS when adding additional CloudSystem Matrix management servers. See Central Management Server section in this document for more information about this configuration.
- HP Insight Control license on each CloudSystem Matrix CMS server. NOTE: The above server (PN 66224-B21) includes a license for Insight Control.
- CloudSystem Matrix Implementation and Startup services for each additional CMS. Please see the Services section below in this QuickSpecs for additional details.

HP Interconnect Options

NOTE: The Virtual Connect interconnect modules that are built in to the Starter and Expansion kits are not removable. Interconnect bays 3 and 4 are available for additional Virtual Connect (VC) FlexFabric modules in HP CloudSystem Matrix with FlexFabric Starter and Expansion kits. Additional supported interconnected options may be added to the remaining available interconnect bays (bays 5/6 and 7/8).

NOTE: HP Virtual Connect FlexFabric 10Gb/24-port Modules should not be added to existing CloudSystem Matrix c7000 enclosures that are using HP Virtual Connect Flex-10 10Gb Ethernet modules and HP Virtual Connect 8Gb 24-Port FC Modules for BladeSystem c-Class. Mixing of Virtual Connect FlexFabric and non-FlexFabric legacy Virtual Connect modules is not permitted.

NOTE: For supported CloudSystem Matrix interconnect options, see the Compatibility chart at: <http://www.hp.com/go/matrixcompatibility>.

NOTE: For HP BladeSystem c-Class Interconnect and Mezzanine Components please visit:

<http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html>

<http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html>

HP Fibre Channel Mezzanine Options

NOTE: For supported CloudSystem Matrix mezzanine options, see the Compatibility chart at: <http://www.hp.com/go/matrixcompatibility>.

8Gb Fibre Channel Mezzanines

Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem 456972-B21

QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem 451871-B21

NOTE: A Fibre Channel host bus adapter card is required for each server blade connecting to a HP Virtual Connect 8Gb 24-Port Fibre Channel Module for c-Class BladeSystem in bays 3-4 (i.e. for all blades in a Matrix with Flex-10 Starter or Expansion kit).

HP Ethernet Mezzanine Options

10 Gigabit Ethernet Mezzanines

HP BLc NC551m Dual Port FlexFabric 10Gb Converged Network Adapter 580151-B21

NOTE: The NC551m CNA mezz is required for each server blade connecting to a VC FlexFabric module in bays 3-4 (i.e. when a Matrix with FlexFabric Starter or Expansion kit is purchased with additional FlexFabric modules).

HP NC553m 10Gb 2-port FlexFabric Adapter 613431-B21



Step 3: Select HP CloudSystem Matrix Expansion Kits

HP CloudSystem Matrix Expansion Kit

NOTE: Add additional Expansion Kits as your CloudSystem 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: When HP CloudSystem Matrix FlexFabric enclosures are configured with any ProLiant G6 blades, two additional HP Virtual Connect FlexFabric 10Gb/24-port Modules must be placed in interconnect bays 3 and 4. When these additional FlexFabric modules are placed in interconnect bays 3 and 4, each blade in that enclosure requires the NC551m Dual Port FlexFabric 10Gb Converged Network Adapter (CNA) (PN 580151-B21).

NOTE: Refer to the HP CloudSystem Matrix compatibility chart at:

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

Hardware plus software licenses

HP CloudSystem Matrix FlexFabric Expansion Kit with 3 year 24x7 Support

627807-B21

HP CloudSystem 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: When HP CloudSystem Matrix FlexFabric enclosures are configured with any ProLiant G6 blades, two additional HP Virtual Connect FlexFabric 10Gb/24-port Modules must be placed in interconnect bays 3 and 4. When these additional FlexFabric modules are placed in interconnect bays 3 and 4, each blade in that enclosure requires the NC551m Dual Port FlexFabric 10Gb Converged Network Adapter (CNA) (PN 589151-B21)) or HP NC553m 10Gb 2-port FlexFabric Adapter (PN 613431-B21).

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
- CloudSystem Matrix documentation CD
- CloudSystem Matrix label for attachment to a 10000 series rack door handle
- HP CloudSystem 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 c-Class 10Gb Short Range Small Form-Factor Pluggable Option

455883-B21

HP BladeSystem c-Class 10Gb Long Range Small Form-Factor Pluggable Option

455886-B21

HP BladeSystem c-Class 10Gb Long Range Mode Small Form-Factor Pluggable Option

455889-B21



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HP BLc Virtual Connect 1Gb SX Small Form Factor Pluggable Option Kit	453151-B21
HP BLc Virtual Connect 1Gb RJ-45 Small Form Factor Pluggable Option Kit	453154-B21
HP 8Gb Shortwave B-series Fibre Channel 1 Pack SFP+ Transceiver	AJ716A
HP 8Gb Long Wave B-series 10km Fibre Channel 1 Pack SFP+ Transceiver	AJ717A

HP CloudSystem Matrix Flex-10 Expansion Kit with 3 year 24x7 Support	507021-B21
HP CloudSystem 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
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
- CloudSystem Matrix documentation CD
- CloudSystem Matrix label for attachment to a 10000 series rack door handle
- HP CloudSystem 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 c-Class 10Gb Short Range Small Form-Factor Pluggable Option	455883-B21
HP BladeSystem c-Class 10Gb Long Range Small Form-Factor Pluggable Option	455886-B21
HP BladeSystem c-Class 10Gb Long Range Mode Small Form-Factor Pluggable Option	455889-B21
HP BLc Virtual Connect 1Gb SX Small Form Factor Pluggable Option Kit	453151-B21
HP BLc Virtual Connect 1Gb RJ-45 Small Form Factor Pluggable Option Kit	453154-B21

Implementation Service

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

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.



Ordering CloudSystem Matrix

Step 4: Select Recommended options for HP CloudSystem 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_na/12810_na.html

and HP BladeSystem c-Class Interconnect and Mezzanine Components:

<http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html>

<http://h18004.www1.hp.com/products/blades/components/c-class-adapters.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/north_america/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 "CloudSystem Matrix Starter Kit Implementation Service" for details.

NOTE: HP ProLiant server blades should be configured to connect via the Virtual Connect modules included in the CloudSystem Matrix kits. See the section below on Mezzanine options for further details.

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/north_america/north_america.html#12391.

NOTE: The management software licenses packaged with HP CloudSystem 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

NOTE: The Virtual Connect interconnect modules that are built in to the Starter and Expansion kits are not removable. Interconnect bays 3 and 4 are available for additional Virtual Connect (VC) FlexFabric modules in HP CloudSystem Matrix with FlexFabric Starter and Expansion kits. Additional supported interconnected options may be added to the remaining available interconnect bays (bays 5/6 and 7/8).

NOTE: HP Virtual Connect FlexFabric 10Gb/24-port Modules should not be added to existing CloudSystem Matrix c7000 enclosures that are using HP Virtual Connect Flex-10 10Gb Ethernet modules and HP Virtual Connect 8Gb 24-Port FC Modules for BladeSystem c-Class. Mixing of Virtual Connect FlexFabric and non-FlexFabric legacy Virtual Connect modules is not permitted.

NOTE: For supported CloudSystem Matrix interconnect options, see the Compatibility Chart at: <http://www.hp.com/go/matrix>.

NOTE: For HP BladeSystem c-Class Interconnect and Mezzanine Components:



Ordering CloudSystem Matrix

<http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html>

<http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html>

Mezzanine Options

NOTE: For supported CloudSystem Matrix mezzanine options, see the Compatibility chart at: <http://www.hp.com/go/matrixcompatibility>.

8Gb Fibre Channel Mezzanines

Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem 456972-B21

QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem 451871-B21

NOTE: A Fibre Channel host bus adapter card is required for each server blade connecting to a HP Virtual Connect 8Gb 24-Port Fibre Channel Module for c-Class BladeSystem in bays 3-4 (i.e. for all blades in a Matrix with Flex-10 Starter or Expansion kit).

10Gb Ethernet Converged Network Adapter Mezzanines

HP BLc NC551m Dual Port FlexFabric 10Gb Converged Network Adapter 580151-B21

NOTE: The NC551m CNA mezz is required for each server blade connecting to a VC FlexFabric module in bays 3-4 (i.e. when a Matrix with FlexFabric Starter or Expansion kit is purchased with additional FlexFabric modules).

HP NC553m 10Gb 2-port FlexFabric Adapter 613431-B21

Support Plus 24 options for CloudSystem Matrix Starter Kit

NOTE: 3-year Support Plus 24 for the entire CloudSystem 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 CloudSystem Matrix Expansion Kit

NOTE: 3-, 4-, and 5-year Support Plus 24 Care Pack uplifts are available for the entire CloudSystem 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.

HP 4 year Support Plus24 BLc7000 Matrix Expansion Service UM860E

HP 5 year Support Plus24 BLc7000 Matrix Expansion Service 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

Critical Service - 3 year Support Plus 24 BLc Matrix Expansion Kit Support, Flexible HA112A3#9K1



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	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 CloudSystem Matrix	
	NOTE: Buy one per CloudSystem Matrix Starter/Expansion kit (supports up to 32 processor sockets).	
	VMware vSphere Enterprise Plus 32P 3yr 24x7 No Media License	TC290A
	VMware vSphere Enterprise Plus for 32 Processors 1yr 24x7 Support License	TD441A
	VMware vSphere Installation & Startup Enterprise Service, Flexible	HA124A1#5NS
	HP Installation and Startup of VMware Vsphere Enterprise or Enterprise Plus	UK837E
	VMware vCenter Server Standard for vSphere	
	VMware vCenter Standard for vSphere 1yr No Media License	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		
VMware vSphere Enterprise Plus 1P 1yr 9x5 No Media License	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	
HP P6300 EVA (factory integrated)	P6300 EVA Factory Integrated Starter Kit with (8) 600GB 10K SFF drives	
	NOTE: This kit is only for Factory Integration and requires the #0D1 option.	
	HP EVA4400 450GB HDD with Embedded Switch Simple SAN Solution	AJ699B
	NOTE: This is the default selection for hosting boot and data LUNs for the CloudSystem Matrix environment.	
HP P6300 EVA 600GB SAS Starter Kit 10K Factory integrated includes:	AP891A	
	<ul style="list-style-type: none"> ● P6300 EVA Dual Controller array FC 	



Ordering CloudSystem Matrix

- M6625 25-SFF bay SAS HDD enclosure
- Eight 600GB 10K RPM SFF SAS disk drives (total 2.4TB)
NOTE: Order additional 600GB 10K RPM SFF SAS disk drives as needed to add capacity
- P6000 Command View/ABM installed with restore CD
NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately
- P6300 Unlimited Command View LTU
- XCS v10.x Firmware installed with restore CD

HP P6300 EVA

Additional Components

NOTE: Additional components required to connect the blade enclosure to the EVA, if customer needs a top of rack B-series SAN switch.

HP 8/20q Fibre Channel Switch (8 switch ports active)	AQ233A
HP 8/20q Fibre Channel Switch (16 switch ports active)	AK242A
HP SN6000 Stackable 8Gb 24-port Single Power Fibre Channel Switch	AW575A
HP SN6000 Stackable 8 Gb 24-port Dual Power Fibre Channel Switch	AW576A
HP SN6000 Stackable 8 Gb 12-port Single Power Fibre Channel Switch	BK780A

NOTE: Required to connect the blade enclosure to the EVA, if customer needs an H-series SAN switch (top of rack).

Optional Components

HP 3 year Support Plus 24 SVC (EVA 6300)	HA110A3
HP Installation and Startup Service (EVA 6300)**(may be required)	HA114A1
HP Technical Installation Startup SVC (Command View)	HA124A1
HP EVA Loopback Connector (QTY 4)	AJ706A
HP P6000 SmartStart V3.4 E-Media Kit	T5505HAE
HP 5m Multi-mode OM3 LC/LC FC Cable (Quantity 8)	AJ836A

HP Virtualized SAN

NOTE: Optional iSCSI storage solutions, including the following.

HP P4300 G2 7.2TB SAS Starter SAN Solution	BK716A
HP P4500 G2 14.4TB SAS Virtualization SAN Solution	BQ888A

Factory Express

HP Rack Signal Cable Interconnect Service	HA865A1
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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 17.3kVA 48A Single Input Three Phase Monitored Power Distribution Unit	AF916A
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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 17.3kVA 48A Three Phase Modular Power Distribution Unit	AF511A
HP 8.6kVA 24A Three Phase Modular Power Distribution Unit	AF512A
HP 8.3kVA 40A High Voltage Core Modular Power Distribution Unit	252663-D75
HP 4.9kVA 24A High Voltage Core Modular Power Distribution Unit	252663-D74



Ordering CloudSystem Matrix

NOTE: The Core Only Modular Power Distribution Unit Kits excludes the extension bars as they are not required with the HP BladeSystem.

HP Two C13 PDU Extension Bar

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.

HP PCI expansion blades

HP BLc PCI Expansion Blade

448018-B21

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

http://h18000.www1.hp.com/products/quickspecs/12753_na/12753_na.html

HP BL c-Class SB40c PCI Express Mezzanine Pass Thru Option Kit

431643-B21

Signal Cables

Optical Cables

HP .5m Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk

AJ833A

HP 1m Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk

AJ834A

HP 2m Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk

AJ835A

HP 5m Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk

AJ836A

HP 15m Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk

AJ837A

HP 30m Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk

AJ838A

HP 50m Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk

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 BladeSystem c-Class Small Form-Factor Pluggable .5m 10GbE Copper Cable

487649-B21

HP BladeSystem c-Class Small Form-Factor Pluggable 1m 10GbE Copper Cable

487652-B21

HP BladeSystem c-Class Small Form-Factor Pluggable 3m 10GbE Copper Cable

487655-B21

HP BladeSystem c-Class Small Form-Factor Pluggable 5m 10GbE Copper Cable

537963-B21

HP BladeSystem c-Class Small Form-Factor Pluggable 7m 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

HP 1.2m/4ft CAT5 RJ45 M/M Ethernet Cable

C7533A

HP 2.1m/7ft CAT5 RJ45 M/M Ethernet Cable

C7535A

HP 4.3m/14ft CAT5 RJ45 M/M Ethernet Cable

C7536A



Ordering CloudSystem Matrix

HP 7.6m/25ft CAT5 RJ45 M/M Ethernet Cable	C7537A
HP 15.2m/50ft CAT5 RJ45 M/M Ethernet Cable	C7542A

NOTE: For OA enclosure linking (1 short link per Expansion Kit 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 1.2m 16A C19-C20 Redundant Jumper Cord	AF575A
HP 2m 16A C19-C20 Redundant Jumper Cord	AF574A
HP 1xC19-C120 16A 2.5m Cable	295633-B22
HP 4.5M Power Cord with C19/C20 Plug	E7804A

HP HV Power Cords 200 - 240V AC

HP 4.5M Power Cord with Nema L6-30P Plug	E7805A
HP 3.6m C19 NEMA L6-20P NA/JP Power Cord	AF593A
HP 3.6m 16A C19 NBR14136 Brazil Power Cord	AF592A
HP AC Line 16Amp C19 Power Cord	359615-031
HP 3.6m 16A C19 CEE7-VII EU Power Cord	AF576A
HP 3.6m 16A C19 AS3112-3 AU/NZ Power Cord	AF577A
HP 3.6m 16A C19 SABS-164 ZA Power Cord	AF579A
HP 3.6m 16A C19 CEI-23-50 IT/CL Power Cord	AF580A
HP 3.6m 16A C19 IEC-309 DK Power Cord	AF581A
HP 2.5m 16A C19 IS-1293 IN Power Cord	AF582A
HP 2.5m 16A C19 SI-32 IL Power Cord	AF583A
HP 2.5m 16A C19 GB-1002 CN Power Cord	AF584A
HP 2.5m 16A C19 CNS-690 TW Power Cord	AF585A
HP 240 VAC 4.5M Unterminated End NA Power Cord	E7806A

Uninterruptible Power Systems

HP Rack Mounted R5500 UPS (single-phase)

HP R5500 6000VA INTL 3U Rackmount Uninterruptible Power System	AF416A
HP R5500 5000kVA NA/JP 3U Rackmount Uninterruptible Power System	AF426A

NOTE: For more information on the R5500 please consult the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/11871_na/11871_na.html

HP Rack Mounted R8000 UPS (3-phase UPS)

HP R8000/3 8000kVA Three Phase 6U Rackmount Uninterruptible Power System	AF431A
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HP Rack Mounted R12000 UPS (3-phase UPS)

HP R12000/3 12000VA Three Phase 6U Rackmount Uninterruptible Power System	AF429A
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NOTE: For more information on the HP 3-Phase UPS products please consult the QuickSpecs at:

http://h18004.www1.hp.com/products/quickspecs/12857_na/12857_na.html



Additional Options

HP Rack Series	HP 10000 G2 Series racks (Graphite Metallic)		
	HP 10642 G2 Shock Universal Rack	AF002A	
	HP 10642 G2 Crated Universal Rack	AF003A	
	HP 10636 G2 Pallet Universal Rack	AF011A	
	HP 10636 G2 Shock Universal Rack	AF012A	
	HP 10636 G2 Crated Universal Rack	AF013A	
	HP 10636 G2 with Extension Shock Rack	AF014A	
	HP 10622 G2 Pallet Universal Rack	AF021A	
	HP 10622 G2 Shock Universal Rack	AF022A	
	HP 10642 G2 200mm Extension Shock Rack	AF034A	
	HP 10642 G2 200mm Extension Pallet Rack	AF038A	
	HP 10842 G2 Pallet Universal Rack	AF041A	
	HP 10842 G2 Shock Universal Rack	AF042A	
	HP 10647 G2 Pallet Universal Rack	AF031A	
	HP 10647 G2 200mm Extension Shock Rack	AF044A	
	HP 10647 G2 200mm Extension Pallet Rack	AF045A	
	HP Intelligent Series Racks		
	HP 642 1075mm Shock Intelligent Series Rack	BW904A	
	HP 642 1075mm Pallet Intelligent Series Rack	BW903A	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html or http://h18004.www1.hp.com/products/quickspecs/14223_na/14223_na.html		
NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower .			

HP Rack Options	Keyboards and Monitors	
	HP TFT7600 Rackmount Keyboard 17in Monitor	AG052A
	HP 1U US Rackmount Keyboard with USB	AG072A
	HP 1U Rackmount Keyboard with USB	AG081A
	NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower	
	HP KVM Switch Options	
	HP 1-pack PS/2 Virtual Media Interface Adapter	AF604A
	NOTE: Requires PS/2 and one USB port on server.	
	HP BladeSystem c-Class KVM Interface Adapter	AF605A
	HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A	
HP KVM CAT5 1-pack PS/2 Interface Adapter	262588-B21	
HP KVM CAT5 8-pack PS/2 Interface Adapter	262587-B21	



Additional Options

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 USB/PS2 KVM Console Switch

AF611A

HP 1x4 KVM Console 6ft PS2 Cable

AF612A

HP 1x4 KVM Console 6ft USB Cable

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>

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 Universal 10642 G2 Front Door

AF009A

HP Universal 10636 G2 Front Door

AF019A

HP 10642 G2 Side Panel

AF054A

HP 10636 G2 Side Panel

AF056A

HP 36U Rack Rear Extension Kit

AF060A

HP 10K G2 600W Graphite Stabilizer Kit

AF062A

HP 10K G2 600W Heavy Duty Graphite Stabilizer Kit

AF064A

HP 10000 G2 Series Rack Grounding Kit

AF074A

HP 600W 10K G2 Rack Tie Down Kit

AF076A

Rack options for HP Intelligent Series racks

HP Rack Grounding Kit

BW891A

HP Baying Kit JB

BW902A

HP 42U 1075mm Side Panel Kit BW906A HP 600mm Rack Tie Down Kit

BW926A

HP 600mm Stabilizer JB

BW932A

HP 42U Front Door Kit

BW934A

HP Qtr Turn Hook and Loop 10 PK

BW963A

HP Qtr Turn Hook and Loop 100 PK

BW964A

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.



Additional Options

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

HP 3 year Next business day c7000 Enclosure Hardware Support UE477E

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

HP 3 year 4 hour 13x5 c7000 Enclosure Hardware Support UE478E

HP 3 year 4 hour 24x7 c7000 Enclosure Hardware Support UE479E

HP 3 year 6 hour 24x7 Call to Repair c7000 Enclosure Hardware Support UE480E

Hardware Services On-site Service

HP 3 Years Next business day c-Class SAN Switch Hardware Support UE436E

HP 3 Years 4 hour 13x5 c-Class SAN Switch Hardware Support UE437E

HP 3 Years 4 Hour 24 hours days 1-7 c-Class SAN Switch Hardware Support UE438E

HP 3 Years 6 Hour 24x7 Call-To-Repair c-Class SAN Switch Hardware Support UE439E

HP Installation Storage Switches Service U5988E

Software Operating Environment Care Packs

HP 1 year 24x7 10 incidents Microsoft/Novell Software Technical Support U9269E

HP 1 year 24x7 25 incident Red Hat High Performance Computing Software Technical Support U3408E

HP 1 year 24x7 10 incidents SuSE IA32 Software Technical Support 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



Additional Options

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 Startup Matrix Operating Environment Recovery Management Service	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 CloudSystem Matrix infrastructure ships with licensed disaster recovery protection for both physical and virtual servers, in coordination with data replication provided by 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 Matrix Operating Environment 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 Implementation Service	UU960E
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 with Migration 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 c-Class Enclosure & ServerBlade Service	UE494E
NOTE: This is recommended to assist with onsite racking and cabling of CloudSystem Matrix enclosures into a rack, particularly when CloudSystem 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 CloudSystem Matrix enclosures into a rack, particularly when CloudSystem 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.	

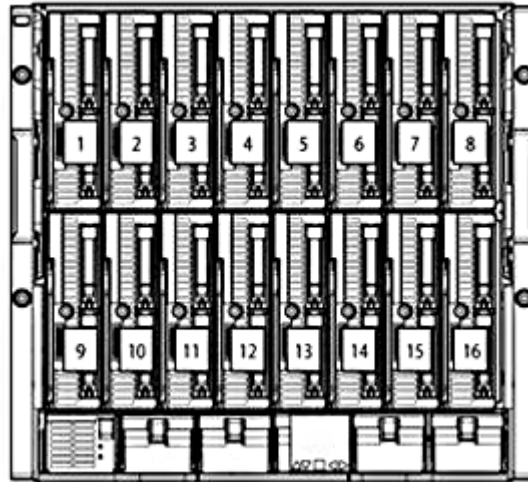


Additional Options

HP BladeSystem Virtualization Tools using HP Matrix Operating Environment 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

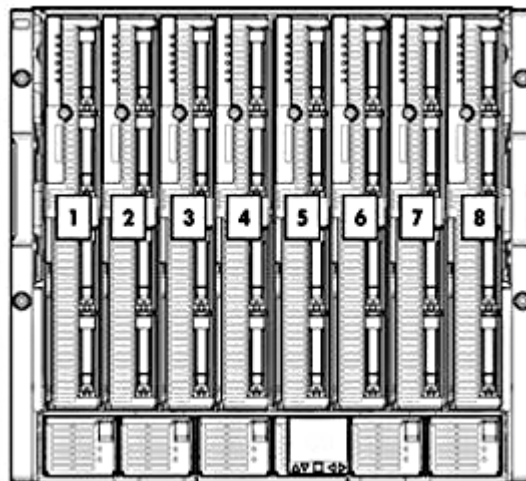


- 1. Device Bay 1
- 2. Device Bay 2
- 3. Device Bay 3
- 4. Device Bay 4
- 5. Device Bay 5
- 6. Device Bay 6
- 7. Device Bay 7
- 8. Device Bay 8

- 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
- 3. Device Bay 3

- 5. Device Bay 5
- 6. Device Bay 6
- 7. Device Bay 7



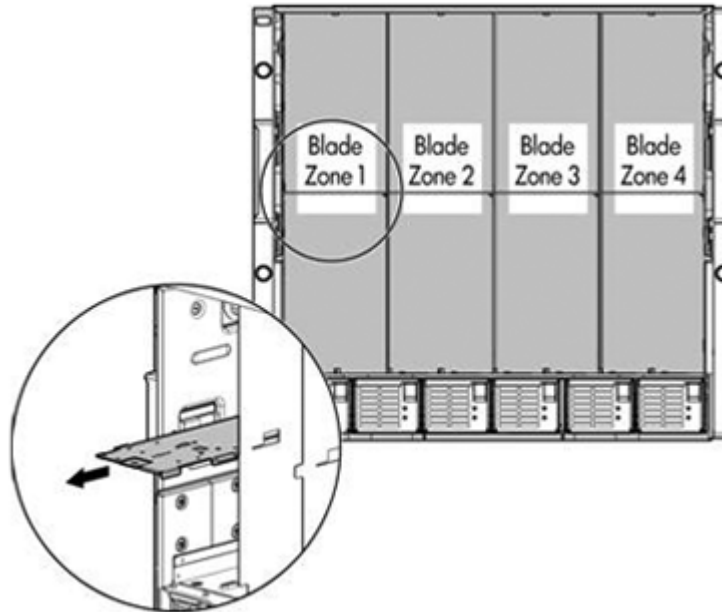
Technical Specifications

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 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 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)	
Maximum enclosure weight (approximate)	Unboxed	450 lb (204 kg)	
	Shipping	493 lb (223.6 kg)	

Technical Specifications

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
	Power cords	Single-Phase	IEC-320 C19-C20 1.22m (6 ft)	
		3-Phase	2 x NEMA L15-30p 2.44m (10 ft)	
		-48V DC Power	Terminal lug: 45DG 4AWG 1/4 2H	
			Two-hole lug 45 degree bend 0.25in. (6.4mm) stud hole size 0.63in. (16mm) hole spacing	
Output specifications (per power supply)	HP 2250W Hot-Plug Power Supply	200 - 240 VAC 2250 W 100 - 120 VAC 960 W		
	HP 2400W High Efficiency Hot-Plug Power Supply	200 - 240 VAC 2400 W		
	HP 2250W -48V DC Hot-Plug Power Supply	2250W		
Acoustic noise	Listed are the declared A-Weighted sound power levels (LWA _d) and declared average bystander position A-Weighted sound pressure levels (LpA _m) 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			



Technical Specifications

accordance with ISO 9296 (ECMA 109).

Idle

LWAd 7.5 Bels

LpAm 57 dB

Idle

LWAd 7.5 Bels

LpAm 57 dB

Environmental-friendly products and approach

End-of-life management and recycling

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

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



Power Specifications

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

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