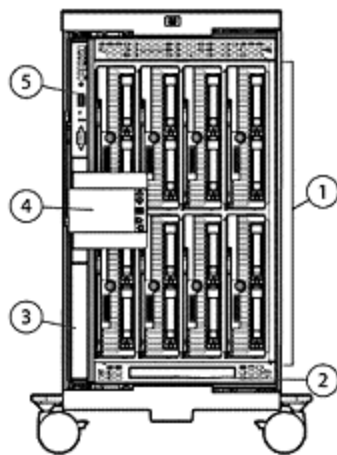
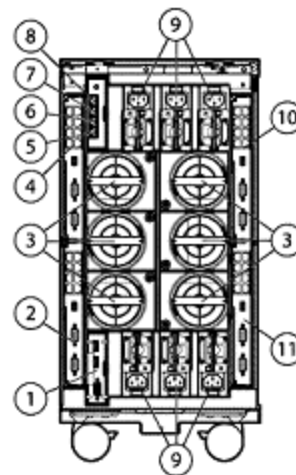


Overview



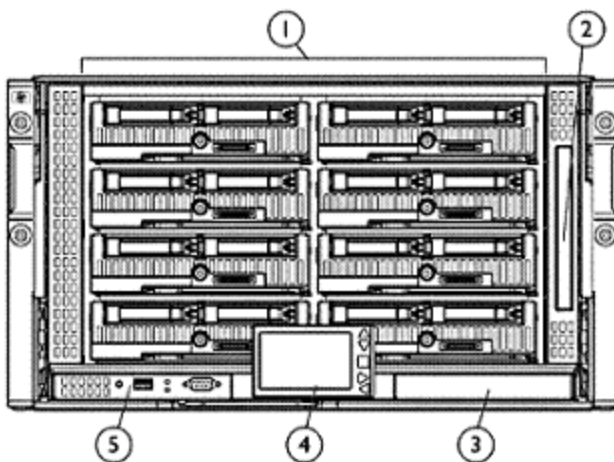
HP BladeSystem c3000 Enclosure – Tower – Front View

1. Device Bays 1 thru 8
2. Enclosure DVD Drive
3. Standby Onboard Administrator
4. Insight Display
5. Active Onboard Administrator



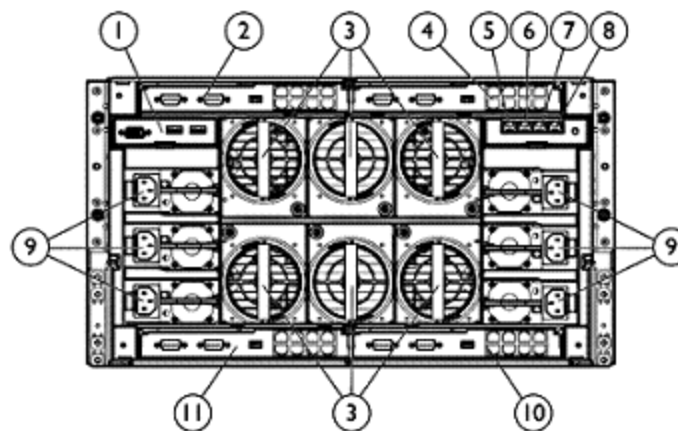
HP BladeSystem c3000 Enclosure – Tower – Rear View

1. Local KVM interface
2. Interconnect Bay 1
3. Active Cool Fans
4. Interconnect Bay 2
5. Enclosure Up-link and Service Port
6. Enclosure Down-link
7. iLO/Onboard Administrator Port
8. iLO/Onboard Administrator Port 2 (reserved for future)
9. Power Supplies
10. Interconnect Bay 4
11. Interconnect Bay 3



HP BladeSystem c3000 Enclosure – Rack – Front View

1. Device Bays 1 thru 8
2. Enclosure DVD Drive
3. Standby Onboard Administrator
4. Insight Display
5. Active Onboard Administrator



HP BladeSystem c3000 Enclosure – Rack – Rear View

1. Local KVM interface
2. Interconnect Bay 1
3. Active Cool Fans
4. Interconnect Bay 2
5. Enclosure Up-link and Service Port
6. Enclosure Down-link
7. iLO/Onboard Administrator Port
8. iLO/Onboard Administrator Port 2 (reserved for future)
9. Power Supplies
10. Interconnect Bay 4
11. Interconnect Bay 3

What's New

- Support for Redundant Onboard Administrator module for c3000 tower enclosure

At A Glance

This document covers the HP BladeSystem c3000 enclosure only. For more information on the HP c7000 enclosure, the HP ProLiant Server Blades, and HP BladeSystem c-Class Interconnect Components please see the following QuickSpecs:

HP c7000 Enclosure: HP ProLiant Server Blades:

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

HP BladeSystem c-Class Interconnect QuickSpecs:

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

Overview

HP BladeSystem c7000 Enclosure QuickSpecs:

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

HP BladeSystem solutions start with either a c7000 or c3000 Enclosure. For the c3000 Enclosure, customers can add c3000 power supplies, Active Cool Fans, a c3000 DVD drive, and if needed, an optional local KVM module. Once the enclosure has been selected, the following components can be added: networking interconnect modules, HP ProLiant and Integrity Server Blades, and optional Insight Control for BladeSystem management software. Please reference the QuickSpecs listed above.

- HP BladeSystem c3000 Enclosures:
 - Offered in two different models: the c3000 Enclosure for racking in standard 19 inch racks, or the c3000 Tower Enclosure on casters for sites without racks.
 - Server blades (excluding the BL 2x220c G6), storage blades, interconnect modules, power supplies, fans, and Onboard Administrator modules are designed to fit into the c3000 enclosure.
 - The HP BladeSystem c3000 enclosure is:
 - A single-phase enclosure available worldwide for use with in-rack PDUs & UPSs which accept C13/C14 power cords; or
 - Alternatively, in countries with low-line (100VAC to 110VAC) power outlets, the enclosure's power supplies can be connected directly to low-line wall outlets.

NOTE: Caution: when connecting directly to wall outlets, customers should determine the maximum amperage of the wall outlet circuit to prevent power overload. See Technical specification section in this document for the individual power supply amperage.
 - HP BladeSystem c3000 enclosure options:
 - Optional HP 1200W High Efficiency AC Common Slot Power Supplies (up to 6 total)
 - Optional c-Class Active Cool fans (between 4 and 6 total)
 - Optional KVM module
 - Optional DVD drive (if not part of an enclosure bundled part number)
 - Optional HP 1200W -48V DC Common Slot Power Supplies (up to 6 total)
 - Optional HP BLc3000 Tower Security Option
 - The c3000 enclosure is 6U and holds up to 8 HP c-Class server blades:
 - Up to 8 half-height server blades (examples: HP ProLiant BL 260c G5, BL2x220c G5, BL460c G6, BL465c, BL465c G5, BL495c G5 Server Blade)
 - Up to 4 full-height server blades (Examples: HP ProLiant BL480c, BL 680c G5, BL685c, BL685c G5 Server Blades)
 - Up to 4 HP SB40c Storage blades attached to half-height server blades
 - Up to 4 PCI Expansion blades attached to half-height server blades
 - Or combinations of the above.
 - For additional server & storage blade information, please visit: <http://h18000.www1.hp.com/products/quickspecs/division/12534.html>
 - Types of interconnect modules available: (up to 4 per enclosure)
 - Ethernet Interconnect Switches from Cisco & Blade Network Technologies (BNT)
 - Ethernet Pass-Thru modules
 - Virtual Connect Ethernet modules (requires VC Management firmware v1.20 or greater)
 - Fibre Channel Interconnect Switches from Brocade & Cisco
 - Virtual Connect Fibre Channel modules
 - Fibre Channel Pass-Thru module.
 - InfiniBand Switch modules
 - For additional HP BladeSystem c-Class Interconnect Component information, please visit: http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html
 - Infrastructure Management:
 - HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports both Windows and Linux-based central management servers.
 - HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. This ultimately enables them to dynamically keep pace with the organization's changing business requirements.
 - Warranty:
 - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard Drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details. **NOTE: Server Blade Enclosure Limited Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support.**
 - For additional information please visit: <http://h18004.www1.hp.com/products/blades/components/components.html>

Models

HP BladeSystem c-Class Server Blade Enclosures

Rack Models - Supports a full enclosure of 8 blades	
HP BladeSystem c3000 Rack Enclosure with 8 Insight Control Licenses NOTE: Includes 4 AC Power Supplies, 6 Active Cool 100 Fans, DVD drive, Rail Kit, Onboard Administrator DDR2 module and 8 Insight Control Licenses.	508664-B21
HP BladeSystem c3000 Rack Enclosure with 8 Insight Control Trial Licenses NOTE: Includes 4 AC Power Supplies, 6 Active Cool 100 Fans, DVD drive, Rail Kit, Onboard Administrator DDR2 module, and 8 Insight Control Trial Licenses.	508665-B21
Rack Models - A "starter" enclosure that supports up to 4 blades	
HP BladeSystem Single-Phase c3000 Enclosure NOTE: Includes 2 AC Power Supplies, 4 Fans, an Onboard Administrator DDR2 module, a DVD drive, rail kit, and 8 Insight Control Trial Licenses; additional power supplies and fans can subsequently be added to support more than 4 blades.	536841-B21
Tower Models - Supports a full enclosure of 8 blades	
HP BladeSystem c3000 Tower Enclosure with 8 Insight Control Licenses NOTE: Includes 4 AC Power Supplies, 6 Active Cool 200 Fans, DVD drive, Onboard Administrator module, and 8 Insight Control Licenses.	458033-B21
HP BladeSystem c3000 Tower Enclosure with 8 Insight Control Trial Licenses. NOTE: Includes 4 AC Power Supplies, 6 Active Cool 200 Fans, DVD drive, Onboard Administrator module, and 8 Insight Control Trial Licenses.	458032-B21
Tower Models - A "starter" enclosure that supports up to 4 blades	
HP BladeSystem c3000 Tower Enclosure NOTE: Includes 2 AC Power Supplies, 4 Fans, an Onboard Administrator module, a DVD drive and 8 Insight Control Trial Licenses; additional power supplies and fans can subsequently be added to support more than 4 blades.	469499-B21
HP BladeSystem c3000 Tower Enclosure NOTE: Includes 2 AC Power Supplies, 4 Fans, an Onboard Administrator module, a DVD drive and 8 Insight Control Licenses; additional power supplies and fans can subsequently be added to support more than 4 blades.	469500-B21

HP BladeSystem c-Class Overview

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-5978ENW.pdf>

HP BladeSystem Overview

As server, storage and network technologies have changed; traditional rack-mounted infrastructure solutions have generated increased complexity of both infrastructure management and physical datacenter deployment.

HP BladeSystem is the evolution of rack-mounted and pedestal infrastructure. A BladeSystem reduces costs and simplifies the management, building, and maintenance of the infrastructure behind your multi-server environment. It consolidates and repackages all the supporting infrastructure elements—compute, storage, network, and power into a single platform that can accelerate the integration and optimization of your data center.

The HP BladeSystem c3000 enclosure has the flexibility to scale from a single enclosure holding up to 8 blades, to a rack containing 7 enclosures holding up to 56 blades, the c-Class infrastructure is designed to meet the needs of today's businesses. The c3000 enclosure is designed for several markets:

- Remote sites or branch offices holding between 3 and 8 servers, and in deployment sites such as retail stores, branch offices, manufacturing sites, and wiring closets. This enclosure is also designed for harsh environments not found in modern datacenters (high ambient temperatures, dusty environments, and in ships, airplanes, platforms, and vehicles).
- Small and medium businesses, who own between 3 and 100 servers. The enclosure is designed for use with management devices such as local KVM switches for local administration.
- Datacenters with special power and cooling constraints, such as datacenters needing DC powered racks, and/or datacenters with low power & cooling capacities (under 3000 watts per rack).
- HPC clusters with InfiniBand interconnection, where the applications need a 1 to 1 IB network subscription ratio between physical nodes in the compute cluster.

HP BladeSystem c-Class infrastructure is made up of several components:

- HP ProLiant and/or HP Integrity Server blades for HP-UX, Windows, Linux, and HP Open VMS.
- Choice of Intel® or AMD processors, including the latest dual-core & quad-core processors for 32-bit and 64-bit applications.
- HP BladeSystem c-Class enclosure (either a c7000 or c3000) that provides connectivity, power, and cooling options. The c-Class enclosure is designed for full redundancy and high availability. A configurable choice of either redundant or non-redundant power, cooling, enclosure management, and interconnect modules are part of the standard enclosure design.
- Onboard Administrator module which provides a single point of control for intelligent management of the entire enclosure.
- Insight Display powered by the Onboard Administrator provides local management through an LCD display conveniently sited on the front of the system.
- Virtual Connect, Ethernet, Fibre Channel, InfiniBand, iSCSI, and other interconnect choices
- A power subsystem that provides either redundant or non-redundant power modes and Dynamic Power Saving mode, which uses up to 30% less power than traditional rack-mounted and tower servers AC or DC power supplies are available.
- PARSEC (Parallel, Redundant, Scaleable, Enclosure Cooling) architecture: for maximum cooling that consumes less power and reduces datacenter noise.
- Direct-attach storage blades, and shared storage blades, which will provide file-based or block-based shared storage capacity for the servers within the enclosure.

HP ProLiant & Integrity Server Blades

Delivering best-in-class performance, choice and reliability with AMD Opteron™, Intel® Xeon™, and Intel® Itanium processors for HP-UX, Windows, Linux, or HP-pen VMS based servers, the HP portfolio of server blades supports a variety of application requirements for scale-out architectures. HP offers one-, two-, and four-processor (dual-core & quad-core) server blades, including the widest range of performance, and form factors, and the most processing density and performance of any other portfolio. This portfolio of servers is designed for 32-bit and 64-bit applications.

For more information please see:

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

HP BladeSystem c-Class Overview

HP SB40c Storage Blade

Direct attached storage

The StorageWorks SB40c Storage Blade delivers direct attached storage for c-Class servers, with support for up to six hot plug small form factor (SFF) SAS or SATA hard disk drives. The enclosure backplane provides a PCI Express connection to the adjacent c-Class server blade and enables high performance storage access without any additional cables. The SB40c Storage Blade features an onboard Smart Array P400 controller with 256 MB battery-backed write cache, for increased performance and data protection.

Shared storage

Use HP LeftHand P4000 Virtual SAN Appliance (VSA) software to turn the SB40c into an iSCSI SAN for use by all servers in the enclosure and any server on the network. HP LeftHand VSA software is installed in a virtual machine on a VMware ESX host server adjacent to the SB40c. HP LeftHand P4000 VSA turns the SB40c into a scalable and robust iSCSI SAN, featuring, storage clustering for scalability, Network RAID for storage failover, thin provisioning, snapshots, remote replication, and cloning. Expand capacity within the same enclosure or to other BladeSystem enclosures by adding additional SB40c Storage Blades and HP LeftHand VSA licenses.

For more information please see:

http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html

HP Ultrium Tape Blades

HP StorageWorks Ultrium Tape Blades provide integrated data protection for HP BladeSystem c-Class enclosures:

- SB1760c Tape Blade is LTO-4 Ultrium tape technology with capacity up to 1.6 TB on a single data cartridge (2:1 compression) and performance up to 576 GB/hr (2:1 compression). SB1760c also includes hardware data encryption capability which can help safeguard data on tape cartridges.
- SB920c Tape Blade is LTO-3 Ultrium tape technology with capacity up to 800 GB on a single data cartridge (2:1 compression) and performance up to 432 GB/hr (2:1 compression).
- 448c Tape Blade is LTO-3 Ultrium tape technology with capacity up to 400 GB on a single data cartridge (2:1 compression) and performance up to 173 GB/hr (2:1 compression).

HP StorageWorks Ultrium Tape Blades provide direct attach data protection for the adjacent server and network backup protection for all other data within the enclosure. The HP Ultrium Tape Blades are the industry's first bladed tape drives and are developed exclusively for the BladeSystem c-Class enclosures.

For more information, please visit:

http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html

HP StorageWorks Network Storage Servers

HP StorageWorks X1800sb Network Storage Blade

HP StorageWorks X1800sb Network Storage Blade is a flexible storage server solution for BladeSystem environments. Combine the X1800sb with the SB40c Storage Blade to enable file serving and iSCSI shared storage inside the BladeSystem enclosure. The flexibility of the X1800sb extends to external storage as well. The X1800sb can also be used as a low cost SAN gateway to provide consolidated file-serving access to FC, SAS, or iSCSI SANs.

NOTE: See the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/12786_div/12786_div.html

HP StorageWorks X3800sb Network Storage Gateway

The X3800sb Network Storage Gateway Blade is used to access FC, SAS, or iSCSI SAN storage, translating file data from the server into blocks for storage to provide consolidated file, print, and management hosting services in a cluster-able package.

Built on the HP ProLiant BL460c Server Blade, the HP StorageWorks X3800sb Network Storage Gateway Blade is a ready to deploy SAN gateway solution, with Microsoft Storage Server 2008, Enterprise x64 Edition pre-installed. The HP Rapid Start-up Wizard accelerates new deployments by walking you through basic system settings step-by-step. The X3800sb also includes a Microsoft Cluster Server (MSCS) license and Microsoft iSCSI Software Target.

NOTE: See the QuickSpecs for Technical Specifications and additional information:

http://h18006.www1.hp.com/products/quickspecs/13334_div/13334_div.html

HP BladeSystem c-Class Overview

HP BladeSystem c-Class c3000 Enclosure

A BladeSystem c3000 enclosure holds up to 8 server and/or storage blades plus redundant or non-redundant network and storage switches. It includes a shared, multi-terabit high-speed mid-plane for wire-once connectivity of server blades to network and shared storage. Power is delivered through a pooled power backplane that ensures the full capacity of the power supplies is available to all blades.

Each c3000 enclosure is built with the following functions:

- Up to 8 half-height and/or up to 4 full-height server blades and/or storage blades per enclosure.
- Up to 3 different interconnect fabrics (Ethernet, FC, IB, iSCSI, SAS, etc.) supported simultaneously within the enclosure.
- A single-phase power subsystem - for flexibility in connecting to datacenter power, or to UPS's or to low-line wall outlets.
- Choice of AC or DC power supplies.
- PARSEC enclosure design - Parallel, redundant and scalable cooling and airflow design.
- Four (4) to Six (6) Active Cool fans
- Fully redundant design - no single point of failure; redundant interconnections between servers and interconnect modules; a mid-plane with no active components; redundant cooling using Active Cool fans; all devices are hot-pluggable and customer replaceable.
- Best performance per watt - lower wattage per server blade, in comparison to rack-mounted servers
- Full AC redundancy - with no power zones.
- Single or Dual Onboard Administrator management modules

An Onboard Administrator management module is built in to the enclosure with the following functions:

- Robust, multiple enclosure setup and control.
- Reports asset and inventory information for the devices in the enclosure.
- Reports thermal and power information, including real-time actual power usage per server and per enclosure.
- Front-mounted Insight Display for easy management at the deployment site.
- Integrated access to all server blade iLOs from a single cable.
- Provides integrated access to interconnect bay device management ports from the single Onboard Administrator cable.
- Single sign-on capability for all devices in the enclosure
- Role-based security locally and/or with LDAP directory services.
- Provides a wizard-based initial setup process for easy configuration.
- An optional DVD drive for local software deployment, and HP SmartStart deployment
- An optional local KVM interface for connection to KVM switches.

A BladeSystem c3000 enclosure provides the following benefits:

- With local and remote hardware management integrated across the solution, one full enclosure can be managed as easily as one server.
- Scalable: Management and network interconnects extend scalability beyond a single enclosure, allowing resources to be pooled and shared across multiple enclosures.
- Investment protection: Accommodates multiple server and network designs in one enclosure.
- Lower costs per server, in comparison to rack-mounted servers
- Lower power consumption, in comparison to rack-mounted servers.
- Service and management: Allows multiple administrators to remotely access and maintain multiple servers & interconnect devices simultaneously.

HP BladeSystem c-Class Interconnect Options

HP also offers one of the broadest selections of interconnect fabric options in the industry to provide network, SAN/network attached storage (NAS), and cluster connectivity. HP BladeSystem interconnects provide:

- New HP Virtual Connect devices, designed to reduce networking costs and simplify network configuration and provisioning.
- Seamless integration of Ethernet, FC, InfiniBand, iSCSI, and SAS fabrics: Standard-based switch options include Cisco, Brocade, and HP (BNT) products that integrate within your existing standards.
- Built-in redundancy: Rear-mounting interconnect modules designed for redundant interconnections between server blades and switches.
- Cable reduction: Interconnect switches provide up to 32-to-1 network cable reductions per server blade enclosure

For more information HP BladeSystem c-Class Interconnect Components, please visit:
http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html

HP BladeSystem c-Class Overview

Factory Express Portfolio for Servers and Storage

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

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

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

HP 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.

<http://www.hp.com/products/configurator>

HP Insight management software

HP Insight Foundation

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

HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems:

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

The foundation pack includes:

- HP SmartStart
- HP Management
- HP ProLiant Firmware Maintenance

SmartStart version supported (minimum): SmartStart 7.60.

<http://www.hp.com/servers/smartstart>

ProLiant Onboard Administrator

HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control, and the Insight Dynamics for ProLiant helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. See: www.hp.com/go/ProLiantOA

HP Insight Control

HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See www.hp.com/go/insightcontrol

HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: <http://www.hp.com/services/insight>

HP Insight Dynamics for ProLiant

HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. As a powerfully integrated by design toolkit to accelerate complex technology projects and simplify daily operations that ultimately enable IT Staff personnel to dynamically keep pace with the organizations changing business requirements. It enables them to plan capacity and power continuously, balance across physical and virtual resources, and ensure

HP BladeSystem c-Class Overview

cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location.

NOTE: For more information, visit:
<http://www.hp.com/go/insightdynamics>

HP BladeSystem Power Sizer The HP BladeSystem Power Sizer helps in sizing the power infrastructure needed for a HP BladeSystem solution. This sizer enables effective planning for the power consumption and heat load of the BladeSystem at its site.

The sizer enables you to:

- Select the type and number of components within each Blade Server and Blade Enclosure.
- View the effect of component changes on the power consumption and heat loading.
- Review server loading and determine power supply and power subsystem requirements.
- Approximate electrical and heat load for facilities planning purposes.

The sizing estimate is based on component level power measurements for a system stressed to maximum capability.

Values obtained from the BladeSystem Sizer tool are measured with all components stressed to 100% load and are intended for facilities planning purposes only. Actual power consumption varies with application type, application utilization, and ambient temperature.

The p-class BladeSystem and the c-Class BladeSystem solutions are supported in the BladeSystem Power Sizer.

Available at: <http://www.hp.com/go/bladesystem/powercalculator>

HP Power Advisor

The HP Power Advisor is a tool provided by Hewlett-Packard to assist in the estimation of power consumption and proper selection of components including power supplies at a system, rack, and multi-rack level. A variety of additional features are also provided including a condensed bill of materials, a cost of ownership calculator, and a power report. The HP Power Advisor allows for the mixing of rack, tower, blade, and other products in a single environment.

Available at: <http://www.hp.com/go/hppoweradvisor>

Service and Support

HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs.

The HP Care Pack service for HP ProLiant BL c-Class server blades, cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server.

HP Care Pack services for the c7000 and c3000 enclosures cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP supported c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the c7000 and c3000 enclosure Care Pack services.

NOTE: SAN/Fabric switches for the HP c-Class BladeSystem are not covered under the c7000 and c3000 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.

To fully capitalize on your HP BladeSystem servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a HP BladeSystem server support offer to help you speedily deploy and maximize system uptime.

Recommended Service – Simplify ProLiant solution implementation, maintenance and management.

- **Support Service** – 4-Hour Response Coverage, 3-Year, 24 x 7, Same Business Day

HP BladeSystem c-Class Overview

- **Deployment Service** – Installation and Start Up for HP BladeSystem Infrastructure

Enhanced Service – Optimize service level to increase IT performance and availability

- **Support Service** – HP Proactive BladeSystem Service, 1-Year
- **Deployment Service** – Enhanced Network Installation and Start-up for HP BladeSystem Switches

Installation & Start-Up service for HP BladeSystem Infrastructure plus HP BladeSystem Enhanced Network Installation and Start-UP as per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

For a complete listing of service offerings and information visit:

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

<http://h20219.www2.hp.com/services/us/en/always-on/servers-bladesystem.html>

Configuration Information Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.

NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order server blades must start with a CTO Blade.

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

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

Step 1: Select desired model, configuration and quantity of HP ProLiant server and Storage blades

NOTE: For server blade information, please visit:

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

NOTE: For Storage Blade information, please visit:

http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html

Step 2: Determine quantity of HP BladeSystem c-3000 Enclosures to purchase and choose Required Options

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

NOTE: Each HP BladeSystem c3000 Server Blade Enclosure holds up to 8 half-height blades, or up to 4 full-height server blades. Server blanks will be shipped in all empty bays.

Select Base Server Blade Enclosure Configuration

HP BladeSystem c3000 Choose one of the following CTO enclosures

c-Class Server Blade Enclosures	HP BladeSystem c3000 CTO Enclosure - Tower NOTE: CTO model includes 4 Active Cool Fans.	458034-B21
	HP BladeSystem c3000 BCS CTO Enclosure - Tower NOTE: CTO model includes 4 Active Cool Fans.	AH351A
	HP BladeSystem c3000 CTO Enclosure- - Rack NOTE: CTO model includes 2 AC power supplies and 4 Active Cool 100 Fans, a DVD drive, rack rails, and a single DDR2 Onboard Administrator module.	508668-B21
	HP BladeSystem c3000 BCS CTO Enclosure - Rack NOTE: CTO model includes 2 AC power supplies and 4 Active Cool 100 Fans, a DVD drive, rack rails, and a single DDR2 Onboard Administrator module.	AH257B

Select Required Options (Choose one of the following from each category unless otherwise noted)

HP Onboard Administrator	HP c3000 Tower Onboard Administrator Module, FIO NOTE: This module is required for 458034-B21 and AH351A.	461514-B21
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Step 2A: Select additional optional enclosure options:

HP Redundant Onboard Administrator	HP c3000 Dual Onboard Administrator Module NOTE: Second Onboard Administrator Module for the DDR2 OA module included in (P/N 508668-B21 and AH257B).	488100-B21
HP Additional c3000 Power Supplies (Choose AC or DC power supplies)	HP 1200W High Efficiency AC Common Slot Power Supply NOTE: AC power supplies include a C13 to C14 PDU power cord. NOTE: HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 1200W, 90%: Climate Savers Computing Initiative SILVER and ECOS Consulting 80 Plus SILVER NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publically posts the results on 80Plus.org .	500172-B21
	HP 1200W -48V DC Common Slot Power Supply NOTE: DC power supplies contain a -48V DC power cord designed for in rack DC power rectifiers. NOTE: When this DC power supply (437573-B21) is ordered as a factory integrated enclosure option, standard AC supplies are not included in the order shipment. When this DC power supply is ordered with an enclosure, but not factory integrated, standard AC power supplies are included in the order shipment and DC power supplies are shipped separately. NOTE: Order additional power supplies for either rack or Tower models, as determined by the use of the HP BladeSystem Power Calculator. NOTE: For a full enclosure, order 4 power supplies in a Power Supply Redundant (N+1) configuration; order 6 power supplies in an AC Redundant (N+N) configuration. NOTE: Order 6 power supplies for AC or DC Redundant (N+N) configuration.	437573-B21

Configuration Information Factory Integrated Models

NOTE: Each enclosure must include only 1 type of power supplies. All AC or all DC power supplies.

NOTE: The HP ProLiant 1200w AC Common Slot Power supply meets multiple Energy Efficiency Initiatives: Climate Savers Computing Initiative Silver and ECOS Consulting 80PLUS Silver. Efficiency test results can be viewed at: 80Plus.org.

HP c-Class Active Cool Fan	<p>HP BladeSystem Active Cool 100 Fan 507082-B21</p> <p>NOTE: These fans are for the HP BladeSystem c3000 CTO Enclosure (P/Ns 508668-B21 and AH257B only).</p> <p>HP BL c-Class Active Cool 200 Fan 412140-B21</p> <p>NOTE: These fans are for the HP BladeSystem c3000 CTO Enclosure (P/Ns 458034-B21 and AH351A only).</p> <p>NOTE: For a full enclosure, order 2 additional (6 total) Active Cool Fans.</p> <p>NOTE: Mixing of the Active Cool 100 and Active Cool 200 in a c3000 enclosure is not supported.</p>
HP c3000 Enclosure DVD Drive	<p>HP c3000 Enclosure DVD Drive 437577-B21</p> <p>NOTE: this option is already included in HP BladeSystem c3000 CTO Enclosure-Rack (508668-B21). Order this option, if desired, for c3000 Tower CTO enclosure (458034-B21)</p>
HP c3000 KVM Modules and Adapters	<p>HP c3000 KVM module 437575-B21</p> <p>NOTE: For use with in-rack KVM switches.</p> <p>KVM Adapter for KVM switches with internal media drives AF603A</p> <p>NOTE: Order one KVM Adapter per c3000 enclosure, to support KVM switches accepting RJ45 cables. Please see Options section of this QuickSpecs for additional product information.</p>
HP Enclosure Options	<p>HP BLc3000 Tower Security Option 461718-B21</p> <p>NOTE: Includes front and back locking security panels, and a dust filter which can be installed in the front panel when needed.</p> <p>HP BLc3000 Tower Replacement Dust Filter 500184-B21</p> <p>NOTE: Includes 2 sets of dust filters.</p>
HP Insight Control for BladeSystem Licenses	<p>HP Insight Control, 8-Server Factory-Integration License Option for BladeSystem enclosure, including 1 year of 24x7 Technical Support and Updates 439034-B23</p> <p>NOTE: This license supports HP ProLiant c-Class blade servers.</p> <p>NOTE: Must be purchased as an option to an HP BladeSystem enclosure. FIO can only be ordered as part of a factory-configured platform. Customer will receive a printed license entitlement certificate via physical shipment.</p> <p>HP Insight Control, 16-Server Factory-Integration License Option for BladeSystem enclosure, including 1 year of 24x7 Technical Support and Updates 417688-B23</p> <p>NOTE: This license supports HP ProLiant c-Class blade servers.</p> <p>NOTE: Must be purchased as an option to an HP BladeSystem enclosure. FIO can only be ordered as part of a factory-configured platform. Customer will receive a printed license entitlement certificate via physical shipment.</p>
HP Optional Power Cords	<p>Power Cord, C20 C13, 15A, Universal Jumper, 2m AF590A</p> <p>NOTE: For use with PDU's accepting C20 power cords.</p> <p>NOTE: Order 1 for each power supply.</p>

Step 3: Select additional (one to four) interconnects.

NOTE: Interconnect Bay 1 must contain one of the "Ethernet" interconnect modules For additional information on Interconnect Options, please visit:

HP BladeSystem c-Class Interconnect QuickSpecs:

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

HP BladeSystem c-Class Ethernet Interconnects	<p>HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem 455880-B21</p> <p>HP 1/10Gb-F Virtual Connect Ethernet Module for c-Class BladeSystem 447047-B21</p> <p>HP ProCurve 6120G/XG Blade Switch 498358-B21</p> <p>HP ProCurve 6120XG Blade Switch 516733-B21</p> <p>Ethernet Pass-Through Module for HP BladeSystem 406740-B21</p> <p>HP 10GbE Pass-Thru Module 538113-B21</p> <p>Cisco Catalyst Blade Switch 3120X for HP 451439-B21</p> <p>Cisco Catalyst Blade Switch 3120G for HP 451438-B21</p> <p>Cisco Catalyst Blade Switch 3020 for HP c-Class BladeSystem 410916-B21</p> <p>GbE2c Layer 2/3 Ethernet Blade Switch for HP c-Class BladeSystem 438030-B21</p> <p>HP GbE2c Layer 2/3 Ethernet Blade Switch Advanced Functionality Software 485192-B21</p> <p>NOTE: Provides additional feature functionality such as Hot Links, PVLAN Edge and IGMPv3 Snooping. Purchase of this SW entitles users to three years of additional software upgrades as made available. This option may be purchased at any time.</p> <p>HP 1:10 Gb Ethernet BL-c Switch 438031-B21</p>
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Configuration Information Factory Integrated Models

	HP 1:10 GbE BLc Advanced Functionality Software	485193-B21
	NOTE: Provides additional feature functionality such as Hot Links, PVLAN Edge and IGMPv3 Snooping. Purchase of this SW entitles users to three years of additional software upgrades as made available. This option may be purchased at any time.	
	HP 10GbE BLc Advanced Functionality Software	485194-B21
	NOTE: Provides additional feature functionality such as Hot Links, PVLAN Edge and IGMPv3 Snooping. Purchase of this SW entitles users to three years of additional software upgrades as made available. This option may be purchased at any time.	
HP StorageWorks SAS Switch	HP StorageWorks 3Gb SAS BL Switch - Single Pack	AJ864A
	HP StorageWorks 3Gb SAS BL Switch - Dual Pack	AJ865A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13170_div/13170_div.html	
HP BladeSystem c-Class FC SAN Interconnects	HP 4Gb Virtual Connect Fibre Channel Module for c-Class BladeSystem	409513-B21
	HP Virtual Connect 8Gb 24-Port Fibre Channel Module for c-Class BladeSystem	466482-B21
	HP Virtual Connect 8Gb 20-Port Fibre Channel Module for c-Class BladeSystem	572018-B21
	16 port FC Pass-thru Module for c-Class BladeSystem	403626-B21
	HP 8/12c SAN Switch c-Class BladeSystem	AJ820A
	HP 8/24c SAN Switch c-Class BladeSystem	AJ821A
	HP 8/24c SAN Switch Power Pack c-Class Enclosure	AJ822A
	HP 8/12c Switch 12-pt c-Class Upgrade LTU	T5517A
	HP Brocade 4/12 SAN Switch Upgrade LTU	AE373A
Cisco MDS 9124e 12 port Fabric Switch	AG641A	

Step 4: Select rack power distribution for installing the enclosure into a rack.

NOTE: For use with the c3000 rack-able model only.

NOTE: A pair of PDUs must be ordered for AC Feed redundancy. If AC redundancy is not required, a single PDU or UPS may be acceptable.

HP Monitored Power Distribution Unit	HP 8.6 kVA Monitored PDU, 30A (NA/JPN)	AF504A
	HP 11 kVA Monitored PDU 16A (INTL)	AF508A
HP Modular Power Distribution Unit	HP 8.3kVA Modular Distribution Unit 40 Amp (NA/JPN)	252663-D73
	HP 8.3kVA Modular Distribution Unit 40 Amp (Intl)	252663-B32
	HP 7.3kVA Modular Distribution Unit 32 Amp (Intl)	252663-B31
	HP 4.9kVA Modular Distribution Unit 24 Amp (NA/JPN)	252663-D72
	HP Two C-13 PDU Extension Bars	AF500A
HP Uninterruptible Power Systems - Rack	HP rack-mountable R5500 UPS (5000VA / 4500 watts)	AF426A
	NOTE: The R5500 includes four c-13 PDU Extension bars. NOTE: The R5500 supports 4 power supplies in the Power Supply Redundant (N+1) power mode	
	HP Rack to Tower 5500 Conversion Kit	AF442A

Step 5: Select Wall Outlet Power Cords (For connection to standard wall outlets)

NOTE: Select one wall outlet power cord for each power supply when plugging the power supplies into a wall outlet.

NOTE: Wall Outlet power cords should only be used with low-line (100v to 110V) power sources. If high-line power outlets are required, safety regulations require the use of a PDU or a UPS between the c3000 enclosures power supplies and wall outlets.

NOTE: A standard PDU power cord(c13 to C14) is included with each AC power supply, so these wall outlet power cords are not required if you plan to plug the power supplies into a PDU or UPS.

Order the appropriate power cord for your countries standard electrical outlets.

HP Power Cords	Nema 5-15P to IEC320-C13, low voltage (6 ft/2 m), North America	AF556A
	NOTE: HP Power cord (6 ft) 1.83 meter 10A C-13-UL domestic power cord, for grounded USA 110V wall outlets.	
	Power Cord, C13,10A , 1.83m, Japan	AF572A
	NOTE: HP Power cord 2 meter C13 Japan low-line power cord, for Japanese 100V wall outlets.	
	Power Cord, C20 C13, 15A, Universal Jumper, 2m	AF590A
	NOTE: For use with PDUs accepting C20 power cords.	

Related Options

HP c3000 Enclosure Options	HP c-Class Replacement Enclosure Miscellaneous Blanks kit NOTE: Contains 1 each of Power Supply Blank, Interconnect Module Blank, Local KVM option blank, DVD Blank, Active Cool Fan Blank, and c3000 minidivider) NOTE: This kit should only be ordered to replace lost or damaged blanks.	412148-B21
	HP c-Class Replacement Server Blank and Coupler Option Kit (contains 1 x half-height server blank with coupler) NOTE: The coupler allows half-height server blanks to be coupled together to create a full-height server blank. NOTE: This kit should only be ordered to replace lost or damaged blanks.	412150-B21
HP c3000 Rack Brackets	HP c3000 Rack Shipping Bracket Kit NOTE: Required when shipping a c3000 enclosure in a HP 10000 series rack. Please order 1 kit per enclosure.	461384-B21
HP Onboard Administrator	HP BLc3000 DDR2 Onboard Administrator Rotate LCD Kit NOTE: For field upgrades of previous generation enclosures only. NOTE: This Redundant Onboard Administrator module supports either single mode, or dual/redundant mode Onboard Administrators.	590863-B21
	HP c3000 Dual Onboard Administrator Module NOTE: Second Onboard Administrator Module for the DDR2 OA module. NOTE: Support for second Order Administrator Module for c3000 Enclosure. NOTE: This module fits into an HP c3000 DDR2 Onboard Administrator.	488100-B21
HP c-Class Power Supply	HP 1200W High Efficiency AC Common Slot Power Supply NOTE: AC power supplies include a C13 to C14 PDU power cord. NOTE: HP BladeSystem Power supplies meet multiple Energy Efficiency Initiatives: 1200W, 90%: Climate Savers Computing Initiative SILVER and ECOS Consulting 80 Plus SILVER NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publically posts the results on 80Plus.org .	500172-B21
	HP 1200W-48V DC Common Slot Power Supply NOTE: DC power supplies contain a -48V DC power cord designed for in rack DC power rectifiers. NOTE: When this DC power supply (437573-B21) is ordered as a factory integrated enclosure option, standard AC supplies are not included in the order shipment. When this DC power supply is ordered with an enclosure, but not factory integrated, standard AC power supplies are included in the order shipment and DC power supplies are shipped separately. NOTE: For c-3000 Low-line Power Cords, please order the appropriate power cord for your countries standard electrical outlets. Please see Step 5 above for power cord part numbers. NOTE: For c-3000 Low-line Power Cords, please order the appropriate power cord for your countries standard electrical outlets. Please see Step 5 above for power cord part numbers.	437573-B21
HP c-Class Active Cool Fans	HP BladeSystem Active Cool 100 Fan	507082-B21
	HP c-Class Active Cool 200 Fan NOTE: For a full enclosure, order 2 additional (6 total) Active Cool Fans. NOTE: Supports the c7000 and c3000 enclosures. NOTE: Mixing of the Active Cool 100 and Active Cool 200 in a c3000 enclosure is not supported.	412140-B21
HP BLc3000 Enclosure DVD Drive	HP c3000 Enclosure DVD Drive	437577-B21
HP c3000 KVM Module and Adapters	HP c3000 KVM Module	437575-B21
	KVM Adapter for KVM switches with internal media drives NOTE: Order one KVM Adapter per c3000 enclosure, to support KVM switches accepting RJ45 cables. Please see Options section of this QuickSpecs for additional product information.	AF603A

Related Options

HP c3000 enclosure options	HP BLc3000 Tower Security Option	461718-B21
	HP BLc3000 Tower Replacement Dust Filter NOTE: Includes 2 sets of dust filters.	500184-B21
HP BladeSystem c-Class Ethernet Interconnects	HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem	455880-B21
	HP 1/10Gb-F Virtual Connect Ethernet Module for c-Class BladeSystem	447047-B21
	HP ProCurve 6120G/XG Blade Switch	498358-B21
	HP ProCurve 6120XG Blade Switch	516733-B21
	Ethernet Pass-Through Module for HP BladeSystem NOTE: The Ethernet Pass-Thru Module is shipped as a single unit and should be ordered in quantities of two.	406740-B21
	HP BladeSystem c-Class Virtual Connect 1Gb SX SFP	453151-B21
	HP BladeSystem c-Class Virtual Connect 1Gb RJ-45 SFP Option Kit	453154-B21
	Cisco Catalyst Blade Switch 3120X for HP	451439-B21
	Cisco Catalyst Blade Switch 3120G for HP	451438-B21
	Cisco Catalyst Blade Switch 3020 for HP c-Class BladeSystem	410916-B21
	HP GbE2c Layer 2/3 Ethernet Blade Switch	438030-B21
	HP 1:10Gb Ethernet BL-c switch	438031-B21
	HP BladeSystem c-Class InfiniBand Switch	HP BLc 4X DDR IB Gen2 Switch for HP BladeSystem c-Class
HP BladeSystem c-Class FC SAN Interconnects	HP 4Gb Virtual Connect Fibre Channel Module for c-Class BladeSystem	409513-B22
	HP Virtual Connect 8Gb 24-Port Fibre Channel Module for c-Class BladeSystem	466482-B21
	HP Virtual Connect 8Gb 20-Port Fibre Channel Module for c-Class BladeSystem	572018-B21
	16 port FC Pass-through Module for c-Class BladeSystem	403626-B21
	HP 8/12c SAN Switch c-Class BladeSystem	AJ820A
	HP 8/24c SAN Switch c-Class BladeSystem	AJ821A
	HP 8/24c SAN Switch Power Pack c-Class Enclosure	AJ822A
	HP 8/12c Switch 12-pt c-Class Upgrade LTU	T5517A
HP Brocade 4/12 SAN Switch Upgrade LTU	AE373A	
Cisco MDS 9124e Fabric Switch for HP c-Class BladeSystem	Cisco MDS 9124e 12-port Fabric Switch	AG641A
	Cisco MDS 9124e 24-port Fabric Switch	AG642A
	Cisco MDS 9124e 12-port Upgrade LTU	T5169A
HP StorageWorks SAS Switch	HP StorageWorks 3Gb SAS BL Switch - Single Pack	AJ864A
	HP StorageWorks 3Gb SAS BL Switch - Dual Pack	AJ865A
HP Insight Software	HP Insight Control	
	HP Insight Control, 8-Server Electronic License for bundling with BladeSystem enclosure, including 1 year of 24x7 Technical Support and Updates	TC276AAE
	HP Insight Control, 16-Server Electronic License for bundling with BladeSystem enclosure, including 1 year of 24x7 Technical Support and Updates	TC277AAE
	HP Insight Control, Single-Server License including 1 year of 24x7 Technical Support and Updates	452148-B22
	HP Insight Software Media Kit NOTE: Insight Software DVD media without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Insight Dynamics, HP Insight Control for Microsoft System Center, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates. NOTE: Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates . NOTE: The "for bundling with an enclosure" license kits can only be ordered together with a BladeSystem c3000 or c7000 enclosure on the same order. NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key, and is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent. NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	436222-B21

Related Options

HP Insight Control for Linux

HP Insight Control for Linux, 8-Server Electronic License for bundling with BladeSystem enclosure, including 1 year of 24x7 Technical Support and Updates TC211AAE

HP Insight Control for Linux, 16-Server Electronic License for bundling with BladeSystem enclosure, including 1 year of 24x7 Technical Support and Updates TC212AAE

HP Virtual Connect Enterprise Manager

HP Virtual Connect Enterprise Manager for BL-c3000, No Media, 1-Enclosure License including 1 year of 24x7 Technical Support and Updates. 459867-B21

NOTE: This license allows 1 BL-c3000 enclosure to be managed with VCEM. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.

NOTE: For additional License Kits, please visit:

http://h18000.www1.hp.com/products/quickspecs/12860_div/12860_div.html

HP c-Class Storage Blades

HP StorageWorks SB40c storage blade 411243-B21

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

http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html

HP PCI Express Mezzanine pass-thru card for HP BladeSystem 431643-B21

NOTE: The mezzanine card is needed to support the SB40c storage blade (P/N 411243-B21) with HP c-Class BladeSystem full-height server blades.

HP Ultrium Tape Blades

HP StorageWorks SB1760c Tape Blade AQ697A

NOTE: LTO-4 Ultrium tape technology

HP StorageWorks SB920c Tape Blade AJ401A

NOTE: LTO-3 Ultrium tape technology

HP StorageWorks Ultrium 448c Tape Blade 440947-B21

NOTE: LTO-2 Ultrium tape technology

HP PCI Express Mezzanine pass-thru card for HP BladeSystem 431643-B21

NOTE: The HP PCI Express Mezzanine Pass-Thru Card for HP BladeSystem (431643-B21) is required when installing a tape blade adjacent to a full-height server blade

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

http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html

HP Expansion Blade

PCI Expansion Blade 448018-B21

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

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

HP StorageWorks Network Storage Servers

HP StorageWorks X1800sb Network Storage Blade AP805A

NOTE: HP StorageWorks X1800sb Network Storage Blade is a flexible storage server solution for BladeSystem environments. Combine the X1800sb with the SB40c Storage Blade to enable file serving and iSCSI shared storage inside the BladeSystem enclosure. The flexibility of the X1800sb extends to external storage as well. The X1800sb can also be used as a low cost SAN gateway to provide consolidated file-serving access to FC, SAS, or iSCSI SANs.

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

http://h18000.www1.hp.com/products/quickspecs/12786_div/12786_div.html

HP StorageWorks X3800sb Network Storage Gateway AP806A

NOTE: The X3800sb Network Storage Gateway Blade is used to access FC, SAS, or iSCSI SAN storage, translating file data from the server into blocks for storage to provide consolidated file, print, and management hosting services in a cluster-able package.

Built on the HP ProLiant BL460c Server Blade, the HP StorageWorks X3800sb Network Storage Gateway Blade is a ready to deploy SAN gateway solution, with Microsoft Storage Server 2008, Enterprise x64 Edition pre-installed. The HP Rapid Start-up Wizard accelerates new deployments by walking you through basic system settings step-by-step. The X3800sb also includes a Microsoft Cluster Server (MSCS) license and Microsoft iSCSI Software Target.

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

http://h18006.www1.hp.com/products/quickspecs/13334_div/13334_div.html

Related Options

HP Power Distribution Units	<p>Monitored PDU</p> <p>HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A (NA/JPN) AF504A</p> <p>HP 11 kVA S1316 Monitored PDU- single input, 3Ø, 16A (INTL) AF508A</p> <p>Modular PDUs</p> <p>HP 8.3kVA Modular Distribution Unit 40 Amp (NA/JPN) 252663-D73</p> <p>HP 8.3kVA Modular Distribution Unit 40 Amp (Intl) 252663-B32</p> <p>HP 7.3kVA Modular Distribution Unit 32 Amp (Intl) 252663-B31</p> <p>HP 4.9kVA Modular Distribution Unit 24 Amp (NA/JPN) 252663-D72</p> <p>HP Two C-13 PDU Extension Bars AF500A</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/pdu (Worldwide)</p>	
HP Power Cords	<p>Power Cord, C20 C13, 15A, Universal Jumper, 2m AF590A</p> <p>NOTE: For use with PDU's that accept C20 power cords.</p>	
HP Uninterruptible Power Systems	<p>Uninterruptible Power Systems - Rack Mountable</p> <p>HP rack-mountable R5500 UPS (5000VA / 4500 watts) AF426A</p> <p>NOTE: The R5500 includes four c-13 PDU Extension bars.</p> <p>NOTE: The R5500 supports 4 power supplies in the Power Supply Redundant (N+1) power mode.</p>	
HP Rack Series (Graphite Metallic)	<p>HP Rack 10000 Series</p> <p>HP S10614 (14U) Rack Cabinet – Shock Pallet 292302-B22</p> <p>HP Rack 10000 G2 Series</p> <p>10642 G2 (42U) Rack Cabinet – Pallet AF001A</p> <p>10642 G2 (42U) Rack Cabinet – Shock Pallet AF002A</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)</p> <p>NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.</p>	
HP Rack Options	<p>Keyboards and Monitors</p> <p>TFT7600 Rackmount Keyboard Monitor US AG052A</p> <p>NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower</p> <p>HP Serial Console Server Options</p> <p>HP 16 Port Serial Console Server (worldwide) AF101A</p> <p>HP 48 Port Serial Console Server (worldwide) AF102A</p> <p>Serial Adapter, RJ45-DB9 DCE Female, 1 Pack AF103A</p> <p>Serial Adapter, RJ45-DB9 DCE Female, 8 Pack AF110A</p> <p>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.</p> <p>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.</p> <p>HP KVM Switch Options</p> <p>BladeSystem c-Class KVM Interface Adapter - 1 pack AF605A</p> <p>HP 2x8 Server Console Switch G2 AF616A</p> <p>HP 2x16 Server Console Switch G2 AF617A</p> <p>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</p> <p>HP 1x4 Console Switch AF611A</p> <p>HP USB Server Console Cable, 6 foot, 2-Pack AF613A</p> <p>NOTE: required for supporting USB peripherals.</p> <p>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</p>	

Related Options

Rack Options

HP 10642 G2 Front Door ALL	AF009A
HP 10636 G2 Front Door ALL	AF019A
10642 G2 (42U) Side Panels (set of two) (Graphite Metallic)	AF054A
10636 G2 (36U) Side Panels (set of two) (Graphite Metallic)	AF056A
10636 G2 Rear Extension Kit	AF060A
600mm G2 Stabilizer Option Kit (Graphite)	AF062A
800mm G2, Heavy Duty Stabilizer Option Kit (Graphite)	AF068A
NOTE: Supports 10000 G2 Series only.	
HP 10000 G2 Rack Grounding Kit	AF074A
600W 10K G2 Rack Tie Down	AF076A

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

HP Tape Backup

NOTE: Fibre channel tape libraries/D2D/VLS devices connect to blade enclosures via a Fibre switch in the switch bay. SAS tape libraries connect to blade enclosures via a SAS switch in the switch bay or a server blade via a SAS HBA inside the PCI Expansion Blade. iSCSI D2D systems connect to blade enclosures via an Ethernet switch in the switch bay. Please visit: <http://www.hp.com/go/ebs> for complete compatibility details.

HP StorageWorks 1/8 G2 Tape Autoloaders

HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library	AJ036A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library	AG326B
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library	AJ036A
HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
HP StorageWorks MSL4048 2 LTO-3 Ultrium 960 4GB FC Library	AG325B
HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A

HP StorageWorks MSL8096 Tape Library

HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 4GB FC Library	AJ040A
HP StorageWorks MSL8096 2 LTO-4 Ultrium 1760 SAS Drive Library	AK382A
HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 4GB FC Library	AH218A
HP StorageWorks MSL8096 2 LTO-3 Ultrium 920 SAS Drive Library	AH561A

NOTE: Please reference the QuickSpecs at: <http://www.hp.com/go/automation> for additional information needed 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	AH814B
HP StorageWorks 9030 Virtual Library System	AG306A
HP StorageWorks 6218 Virtual Library System	AH809B
HP StorageWorks 6227 Virtual Library System	AH810B
HP StorageWorks 6636 Virtual Library System	AH811B
HP StorageWorks 6653 Virtual Library System	AH812B

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

Related Options

HP Disk Backup	D2D Backup	
	HP StorageWorks D2D2504i Backup System	EJ002A
	HP StorageWorks D2D2503i Backup System	EH945A
	NOTE: 3TB of Disk Storage	
	HP StorageWorks D2D4004i Backup System	EH938A
	NOTE: 4.5TB of Disk Storage	
	HP StorageWorks D2D4004fc Backup System	EH941A
	NOTE: 4.5TB of Disk Storage	
	HP StorageWorks D2D4009i Backup System	EH939A
	NOTE: 9TB of Disk Storage	
	HP StorageWorks D2D4009fc Backup System	EH942A
	NOTE: 9TB of Disk Storage	
	HP StorageWorks D2D4112 Backup System	EH993A
	NOTE: 12TB of Disk Storage	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information at: http://www.hp.com/go/d2d .	

HP Care Pack Services **NOTE:** HP Care Pack services for the c3000 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 c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the c3000 enclosure Care Pack services.

NOTE: SAN/Fabric switches for the HP c-Class BladeSystem are not covered under the c3000 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 UH309E

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

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic UH310E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UH311E

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UH312E

Support Plus 24

Onsite HW support 24x7, 4-Hour response and Insight Control suite for BladeSystem Software Updates and Software Technical support offsite, onsite at HP's discretion, 24x7 2-Hour response time including. HP holidays, Electronic UF540E

Installation & Start-up Services

HP BladeSystem c3000 + ICE + OS Installation and Startup Service for Blade Hardware and Insight Control Software, Electronic UF817E

HP BladeSystem c3000 Installation & Startup for Blade Hardware and Operating System UF818E

HP BladeSystem c3000 Enhanced Network Installation and Startup Service, Electronic UF814E

ProLiant BL c-Class Enclosure and Blade Hardware Installation, Electronic UE494E

ProLiant BL c-Class Blade Server Hardware Installation, Electronic UE493E

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

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

NOTE: The HP Care Pack service part numbers below covers the HP Brocade 4Gb, 12 Port SAN Switch and Brocade 4/24 SAN Switch.

Hardware Services On-site Service

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

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

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

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

Hardware Installation, Electronic U5988E

NOTE: The HP Care Pack service part numbers below covers the Brocade 4/24 SAN Switch Power Pack.

Hardware Services On-site Service

Support Plus

Onsite Hardware support, 8am-9pm, M-F, 4-hour response and Software Technical support offsite, onsite at HP's discretion, 8am-9pm, M-F 2-hour response time excluding HP holidays, Electronic UE728E

Support Plus 24

Related Options

Onsite Hardware support, 8am-9pm, M-F, 4-Hour response and Software Technical support offsite, onsite at HP's discretion, 8am-9pm, M-F 2-Hour response time excluding HP holidays, Electronic	UE729E
NOTE: The HP Care Pack service part numbers below covers the HP Cisco MDS 9124e 12 port and 24 port Fabric Switch.	
Hardware Services On-site Service	
Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	UF313E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UF972E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UF973E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UF974E
Hardware Installation, Electronic	U5988E
Software Installation and StartUp Services	
Provides for the Installation and Start-up of HP Insight Rapid Deployment software, Electronic	U5683E
NOTE: Provides installation on a Customer supplied server designated as a Deployment Server. Includes the deployment of a single server. This new server will be deployed using either one of the pre-configured scripts or an image. In addition, the service will provide for the capture and storage of the configuration of the newly deployed server and orientation on product usage. To be delivered during standard office hours, standard office days.	
Provides for the Installation and Start-up of HP Insight Rapid Deployment software Implementation of HP Insight Rapid Deployment software (Basic), Electronic	UA042E
NOTE: Service coverage: onsite installation of the Vulnerability and Patch Management (VPM) software on a customer designated server, configuration of the VPM software to acquire security patches, enabling the VPM software to scan up to five (5) systems, applying the security patches to the designated servers, generating a report from VPM that shows the vulnerability assessment results, and providing customer with an orientation to the software.	
Provides for the Installation and Start-up of System Insight Manager (Electronic)	UA041E
Provides for the Installation and Start-up of System Insight Manager Agents (Electronic)	UA040E
Provides for the Installation and Startup of Insight Control – Linux Edition	UF369E
Provides for the Installation and Startup of HP Virtual Machine Manager software for ProLiant & HP Insight Server Migration Manager for ProLiant	UD546E
Software Operating Environment Care Packs	
1 Year Microsoft operating environment software support 24x7 – 10 incidents	U9269E
1 Year Red Hat operating System software support 24x7 – 10 incidents	U3408E
1 Year SuSE operating System software support 24x7 – 10 incidents	U9936E
1 Year 9x5 ProLiant Essentials Software Support	UF512E
1 Year 24x7 ProLiant Essentials Software Support	UF513E
3 Year 9x5 ProLiant Essentials Software Support	UF514E
HP 3 Year 24x7 ProLiant Essentials Software Support	UF515E
NOTE: For more information, customer/resellers can contact: http://www.hp.com/hps/carepack/services/	
NOTE: HP Care Pack services for the c3000 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 c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the c7000 enclosure Care Pack services.	
NOTE: SAN/Fabric switches for the HP c-Class BladeSystem are not covered under the 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#6X4
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#6X4
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	HA104A3#6X4
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	HA105A3#6X4
Support Plus	
Onsite HW support, 8am-9pm, M-F, 4hr response and SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, 3 Years	HA109A3#6X4

Related Options

Support Plus 24 - Onsite HW support 24x7, 4hr response and SW support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, 3 Year	HA110A3#6X4
Proactive 24 Service - Mission Critical proactive environment 24x7 4hr onsite HW support, 3 Years	HA111A3#6X4
Critical Service - Mission Critical proactive environment 6-Hour Call-to-Repair onsite HW support, 3 Years	HA112A3#6X4
Installation & Start-up Services	
HP BladeSystem c3000 Hard Ware Installation	HA113A1#57A
HP BladeSystem c3000 Infrastructure Installation and Startup Service for Blade Hardware and Insight Control Software	HA114A1#57A
NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/bladessystemservices	
NOTE: The HP Care Pack service part numbers below covers the HP Brocade 4Gb, 12 Port SAN Switch and Brocade 4/24 SAN Switch.	
Hardware Services On-site Service	
Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years	HA101A3#85J
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years	HA103A3#85J
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years	HA104A3#85J
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	HA105A3#85J
Hardware Installation, Electronic	HA113A1#5D2
NOTE: The HP Care Pack service part numbers below covers the Brocade 4/24 SAN Switch Power Pack.	
Hardware Services On-site Service	
Support Plus	
Onsite HW support, 8am-9pm, M-F, 4hr response and SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excluding HP holidays, Electronic	HA109A3#85K
Support Plus 24	
Onsite HW support 24x7, 4hr response and SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time including HP holidays, Electronic	HA110A3#85K
NOTE: The HP Care Pack service part numbers below covers the HP Cisco MDS 9124e 12 port and 24 port Fabric Switch.	
Hardware Services On-site Service	
Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years	HA101A3#87L
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years	HA103A3#87L
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years	HA104A3#87L
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	HA105A3#87L
Hardware Installation, Electronic	HA113A1#5D2
NOTE: For more information, customer/resellers can contact: http://www.hp.com/hps/carepack/services/	

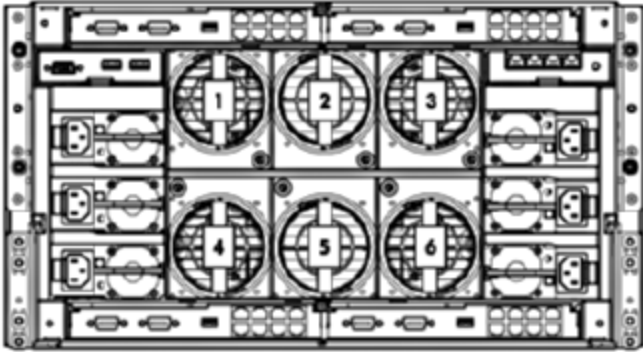
Power Specifications

HP 1200W CS HE Power Supply Kit							
Part Number	500172-B21						
Input Voltage Range (V rms)	100-240						
Frequency Range (Nominal) (Hz)	50 / 60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	9.7	9.0	7.0	6.8	6.4	6.1	5.9
Maximum Rated Input Wattage Rating (Watts)	930	1034	1348	1348	1348	1348	1348
Maximum Rated VA (Volt-Amp)	970	1079	1406	1406	1406	1406	1406
Efficiency (%)	86	87	89	89	89	89	89
Power Factor	0.97						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	3174	3530	4600	4600	4600	4600	4600

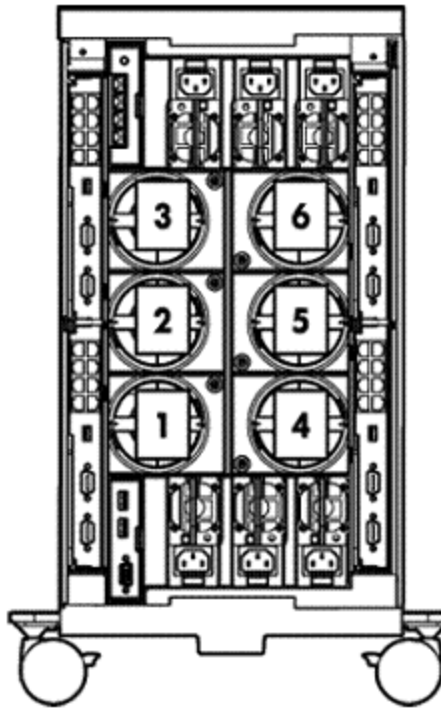
Technical Specifications

Server Blade, Power Supply and Fan Population Guidelines

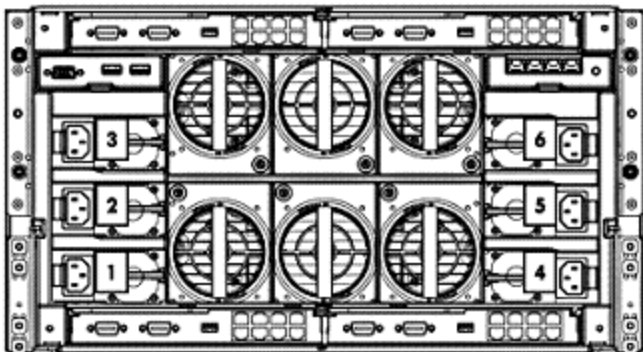
Fan & power supply bay numbering



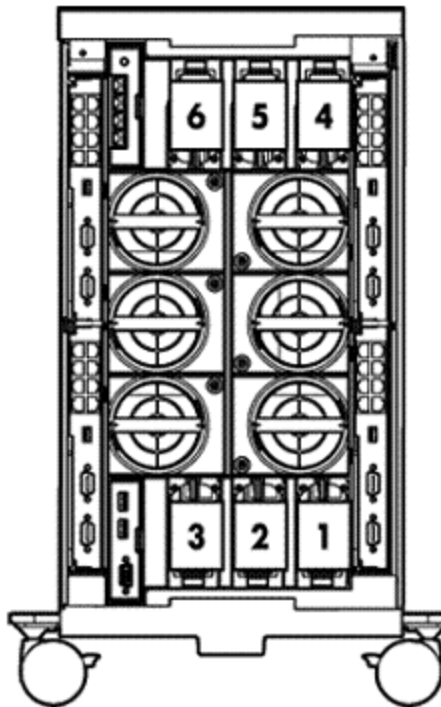
HP BladeSystem c3000 Enclosure – Rack
Fan bay numbering



HP BladeSystem c3000 Enclosure – Tower



HP BladeSystem c3000 Enclosure – Rack
Power supply bay numbering



HP BladeSystem c3000 Enclosure – Tower

Power Supplies & Fans must be placed in the following bays

Number of Fans

- 4
- 6

Number of Power Supplies (for PS Redundant or non-redundant mode)

- 2
- 3
- 4
- 5
- 6

Number of Power Supplies (For AC Redundant mode)

- 2
- 4
- 6

Fan Bays Used

- 2,4,5, 6
- all bays filled

Power Supply Bays Used

- 1 & 2
- 1, 2, & 3
- 1, 2, 3, 4
- 1 through 5
- All bays

Place Power Supplies in bays:

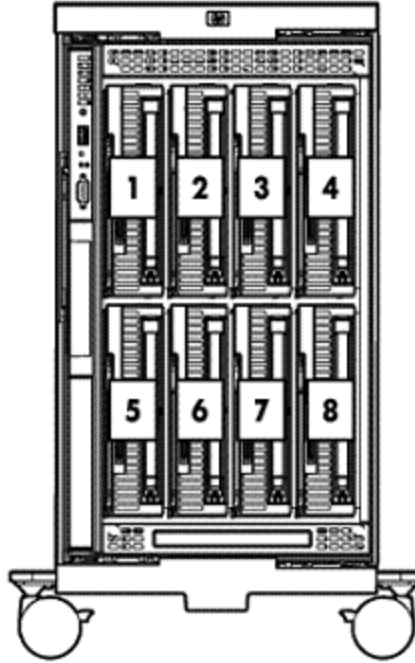
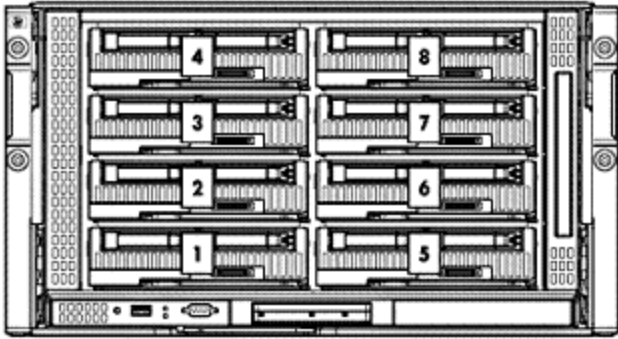
- 1 & 4
- 1, 2, 4, & 5
- all bays filled

Technical Specifications

NOTE: With four fans, the enclosure will support only 4 half-Height Server blades in the bottom half of the enclosure device bays. With six fans, all 8 server bays may be filled.

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

Half-height server blade bay numbering



HP BladeSystem c3000 Enclosure – Racks

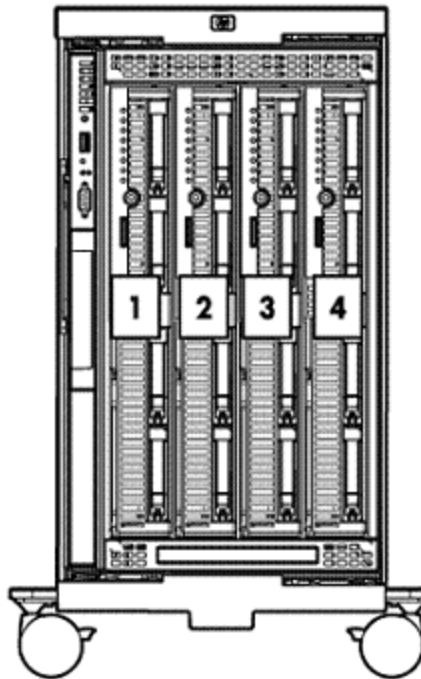
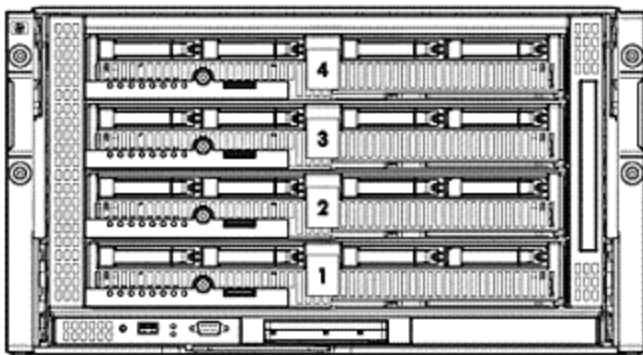
1. Device Bay 1
2. Device Bay 2
3. Device Bay 3
4. Device Bay 4
5. Device Bay 5
6. Device Bay 6
7. Device Bay 7
8. Device Bay 8

HP BladeSystem c3000 Enclosure – Tower

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

NOTE: Half-height server blades should be populated from the bottom half of the enclosure, in the following order (bays 1, 5, 2, 6, 3, 7, 4, & 8)

Full-height server blade bay numbering



HP BladeSystem c3000 Enclosure – Racks

1. Device Bay 1
2. Device Bay 2
3. Device Bay 3
4. Device Bay 4

HP BladeSystem c3000 Enclosure – Tower

1. Device Bay 1
2. Device Bay 2
3. Device Bay 3
4. Device Bay 4

NOTE: Full-height servers should be populated from the bottom to the top (bays 1 thru 4). With four fans, only the bottom 2 bays can be used; with six fans, all bays can be used.

Technical Specifications

Mixed Configuration – Full Height and Half Height Population

The c3000 enclosure is divided into 2 zones or quadrants by the horizontal (vertical on Tower model) support metalwork. Zone 1 includes bays 1, 2, 5, and 6; Zone 2 contains bays 3, 4, 7, and 8. 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. An optional mini-divider support bracket is included with every c3000 enclosure. As a consequence of using the mini-divider in the Zone 2, this zone can only contain one full height blade and 2 half-height blades. Zone 1 can contain either 4 half-height blades, or by removing the divider, it can contain 2 full-height blades.

NOTE: Please read the RTF card (included with each c3000 enclosure) and the "HP BladeSystem c3000 Setup and Installation Guide" for more information on using bay dividers and the mini-divider for mixed configurations.

NOTE: Storage or tape blades can be installed in the same zone as both full-height and half-height blades, a bracket ships with each SB40c that allows a half-height blade to be mounted to the left side of a storage or tape blade.

NOTE: In this case, the SB40c or tape blade cannot be removed without first removing the half height blade and mounting bracket.

NOTE: For Mixed configurations of full height and half height population rules; please see the c3000 Enclosure installation and users guide at: <http://h71028.www7.hp.com/enterprise/cache/316682-0-0-0-121.html>

Enclosure Unit – Rack Model	Dimensions (H x W x D)	10.4 x 19.1 x 32.977 in (265 x 485 x 835 mm) (with bezel)	
	Weight (approximate)	Maximum (one enclosure with 8 blades and 4 interconnects installed)	300 lb (136 kg)
		Minimum (one enclosure without blades and interconnects)	130 lb (59 kg)
	Input Requirements (per AC power supply)	Rated Line Voltage	90 – 132 VAC 180 – 264 VAC
		Rated Input Current	9.3 A (at 100 VAC) 9.7 A (at 120VAC) 7.8 A (at 200 VAC) 7.2 A (at 208 VAC) 6.8 A (at 220 VAC) 6.2 A (at 240 VAC)
		Rated Input Frequency	47 to 63 Hz
	BTU Rating	Maximum per power supply	2728 BTU/hr (at 100 VAC) 3069 BTU/hr (at 120VAC) 4092 BTU/hr (at 200 to 240 VAC)
	Power Specifications	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: www.hp.com/go/bladeSystem/powercalculator	
	Power Supply Output (per power supply)	Rated Steady-State Power	800 W (at 100 VAC) 900 W (at 120 VAC) 1200 W (at 200 to 240 VAC)
		Maximum Peak Power	880 W (at 100 VAC) 990 W (at 120 VAC) 1350 W (at 200 to 240 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.

Technical Specifications

	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise		Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).
	Idle	depends on server configuration & mix of server blades
	Operating	varies by CPU utilization, server configuration, and mix of server blades

Enclosure Unit – Tower Dimensions (H x W x D) 21.29 x 13.48 x 34.43 in (54.08 x 34.24 x 87.45 cm)

Model	(with bezel)	
Weight (approximate)	Maximum	342 lb (155 kg)
	(all server blades and interconnects installed)	
	Minimum	192 lb (87.09 kg)
	(2 power supplies & 4 fans, no server blades nor interconnects installed)	
Input Requirements (per AC power supply)	Rated Line Voltage	90 – 132 VAC 180 - 264 VAC
	Rated Input Current	9.3 A (at 100 VAC) 9.7 A (at 110 VAC) 7.8 A (at 200 VAC) 7.2 A (at 208 VAC) 6.8 A (at 220 VAC) 6.2 A (at 240 VAC)
	Rated Input Frequency	47 to 63 Hz
BTU Rating	Maximum per power supply	2728 BTU/hr (at 100 VAC) 3069 BTU/hr (at 120VAC) 4092 BTU/hr (at 200 to 240 VAC)
	Power Specifications	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: : www.hp.com/go/bladeSystem/powercalculator
	Power Supply Output (per power supply)	Rated Steady-State Power 800 W (at 100 VAC), 900 W (at 120 VAC) 1200 W (at 200 to 240 VAC)
	Maximum Peak Power	880 W (at 100 VAC), 990 W (at 120 VAC) 1350 W (at 200 to 240 VAC)
System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.

Technical Specifications

	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise		Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).
	Idle	depends on server configuration & mix of server blades
	Operating	varies by CPU utilization, server configuration, and mix of server blades

Option Kits	Power Supply Dimensions	Size	Height: 1.515 in (38.48 mm) Width: 3.4 in (86.36 mm) Depth: 7.5 in (190.5 mm)
		Weight	2.5 lbs (1.13 kg)
	Fan Option Shipping Dimensions	Size	Height: 8.75 in (223 mm) Width: 9.75 in (248 mm) Depth: 15.88 in (403 mm)
		Weight	4.0 lbs (1.8 Kg)

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

Environment-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.

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