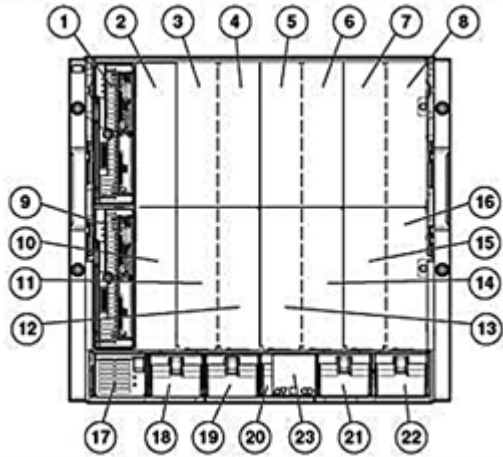
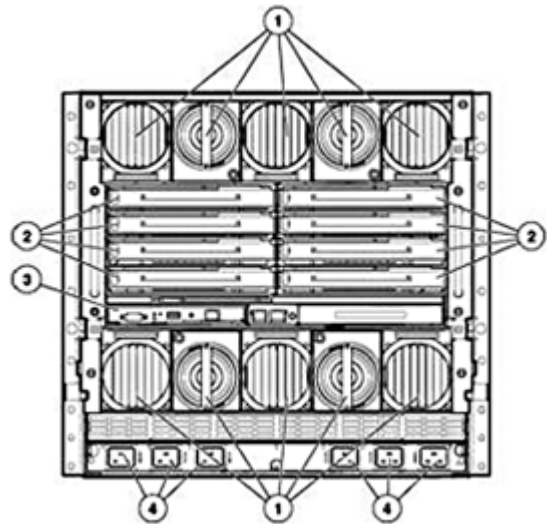


Overview



HP BladeSystem c7000 Enclosure - Front View

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 9
11. Device Bay 11
12. Device Bay 12
13. Device Bay 13
14. Device Bay 14
15. Device Bay 15
16. Device Bay 16
17. Power Supply Bay 1
18. Power Supply Bay 2
19. Power Supply Bay 3
20. Power Supply Bay 4
21. Power Supply Bay 5
22. Power Supply Bay 6
23. Insight Display



HP BladeSystem c7000 Enclosure - Rear View

1. Active Cool 200 Fans & fan bays
2. Interconnect Bays
3. Onboard Administrator
4. Power Inputs

Overview

At A Glance

This document covers the NEBS Level 3 certified HP BladeSystem c7000 Enclosure. This document covers the blades, interconnects, etc. which have passed the NEBS Level 3 and ETSI EN 300 386-2 certifications. Testing and certification is limited to -48VDC powered enclosures. For more information on HP ProLiant Server Blades and HP BladeSystem c-Class Interconnect Components please see the following QuickSpecs:

HP ProLiant c-Class 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

HP BladeSystem c3000 Enclosure QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html

HP BladeSystem Carrier Grade (CG) solutions start with a BladeSystem c7000 Enclosure, c7000 hot-plug -48VDC power supplies, HP Active Cool Fans, and an optional redundant Onboard Administrator module. Once the enclosure has been selected, the following components can be added: networking interconnect modules, HP ProLiant and Integrity Server Blades, and Insight Control management software. Reference the QuickSpecs listed above.

- **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. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.
- Enclosure: Three-year parts and labor, on-site limited global warranty. Certain restrictions and exclusions apply
- Enclosure options: Fans, Power Supplies, Onboard Administrator, 1 Year parts only or enclosure warranty
- HP BladeSystem Interconnects: 1 Year parts and labor, on-site regardless of the warranty period for the system in which they are installed
- 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
- SATA hard drives have a one year parts and labor on-site warranty regardless of the system in which they are installed
- SAS Enterprise drives have a 3 year warranty regardless of the system in which they are installed.

For additional information please visit: <http://www.hp.com/go/bladesystem>

HP BladeSystem c-Class c7000 Enclosure

A BladeSystem c7000 enclosure holds up to 16 server and/or storage blades plus 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 redundant hot-plug power supplies is available to all blades.

Each c7000 Carrier Grade enclosure is built with the following functions:

- Up to 16 half-height and/or up to 8 full-height server blades and/or storage blades per enclosure.
- Up to 4 different interconnect fabrics (Ethernet, FC) supported simultaneously within the enclosure.
- -48V DC power subsystem .
- HP Thermal Logic technology for lower power consumption and airflow.
- Ten (10) Active Cool 200 fans required for Telco operation
- Redundant hot-plug cooling, redundant hot-plug power supplies, redundant connections, redundant interconnect modules, optional redundant Onboard Administrator management modules.
- Lowest cost of ownership.



Overview

An Onboard Administrator management module is built into 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 within the datacenter.
- 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.

A BladeSystem c7000 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.
- Lower airflow requirements, in comparison to rack-mounted servers



HP BladeSystem c-Class Overview

HP ProLiant & Integrity Server Blades

Delivering best-in-class performance, choice and reliability on Intel® Xeon® and Intel® Itanium 2® processors for Windows, Linux, Solaris, or HP-UX based servers; the HP portfolio of server blades supports a variety of application requirements for scale-out architectures. The HP BL460 G6 and BL860 have been certified as NEBS Level 3.

For more information please see:

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

HP BladeSystem c-Class Network Interconnects

HP Dynamic Power Capping is the industry's first and only power capping solution that lets you reclaim trapped power and cooling capacity without putting electrical infrastructure or server performance at risk. The enclosure Dynamic Power Cap will be shared amongst all of the installed devices and individual server caps will be changed to match the server load. This will optimize the performance of the servers while ensuring that the enclosure stays below the cap value. Dynamic Power Capping solution is available only through the HP Insight Control management software.

Core Infrastructure Management

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 suites, and the Insight Dynamics-VSE suite 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/onboardadministrator

HP Insight Control suites

HP Insight Control (ICE) suites, as product options, deliver essential infrastructure management that can help save time and money by making it easy to deploy, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. ICE suites install and license software modules that are integrated into HP System Insight Manager.



HP BladeSystem c-Class Overview

Two Insight Control suites are available to serve environments requiring either Linux-based or Windows-based management consoles: HP Insight Control suite for Linux (ICE-LX), and HP Insight Control suite (ICE). See www.hp.com/go/insightcontrol

HP Insight Control suites include 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 - VSE suite

The HP Insight Dynamics - VSE suite for ProLiant, a product option, is an integrated command center that enables you to continuously analyze and optimize your adaptive infrastructure. This advanced infrastructure management software allows you to analyze and optimize your adaptive infrastructure to manage physical and virtual resources in the same way. HP Insight Dynamics - VSE gives you a powerful toolkit to accelerate complex technology projects and simplify daily operations. It enables you to plan capacity and power continuously, balance across physical and virtual resources, ensure cost-effective high availability, and provision infrastructure consistently.

HP Insight Orchestration, an optional extension to Insight Dynamics - VSE, 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.

HP Insight Recovery, also an optional extension for Insight Dynamics - VSE, enables cost-effective disaster recovery for physical and virtual environments. Application environments can 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>, <http://www.hp.com/go/insightorchestration>, <http://www.hp.com/go/insightrecovery>



HP BladeSystem c-Class Overview

HP Software Support

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

With this service, HP Insight Control suite and Insight Control suite for Linux customers will benefit from expedited problem resolution and proactive notification and delivery of software updates.

To activate your HP Software Technical Support and Update Service for HP Insight Control suite and Insight Control suite for Linux, you must register your software purchase through the HP website at: <http://www.hp.com/services/insight>.

Failure to register your service will jeopardize service fulfillment.

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

HP BladeSystem 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 BladeSystem c-Class Overview

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 carrier-grade 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 carrier-grade 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-cg 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
- **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/bladeSystemservices>

<http://www.hp.com/go/proliant/carepack>



Storage

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

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

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-Class Enclosures to purchase and choose Required Options (One of the following from each list unless otherwise noted):

NOTE: Each HP BladeSystem c-Class Server Blade Enclosure holds up to 16 half-height blades. Server blanks will be shipped in all empty bays.

Base Server Blade Enclosure Configuration

HP BladeSystem BLc7000 c-Class Server Blade Enclosures	HP BLc7000 CTO Enclosure	507019-B21
	HP BLc7000 BCS CTO c-Class Enclosure	AD361C
	NOTE: CTO models include 1x Onboard Administrator with KVM, 4x Active Cool 200 Fans and 0x power supplies.	
	NOTE: All c-Class enclosures support HP ProLiant, Integrity and StorageWorks blades in either mixed or homogenous configurations. The AD361C enclosure is suggested for configurations primarily used with Integrity blades.	

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

c-Class Power Modules (1 per enclosure)	HP BLc7000 -48V DC Power Input Module	AH331A
c-Class Power Supply (Up to 6)	HP c7000 Enclosure 2250W Hot-Plug -48V DC Power Supply (single PSU) NOTE: Only compatible with -48V DC Power Input Module.	AH332A
c-Class Active Cool Fan (Up to 6)	6x HP Active Cool 200 Fan Bundle, FIO NOTE: The bundle includes a quantity of 6 HP Active Cool 200 Fans so a full enclosure can be configured with a single part number. NOTE: NEBS Level 3 certification requires 10 fans.	517520-B21

Step 3: Select optional software bundle (if nothing is selected system will ship with 16 Insight Control and Insight Control for Linux Trial Licenses):

Enclosure Options	HP c-Class Insight Control suite for BladeSystem 16 License, including 1 year of 24x7 Technical Support and Updates, FIO	417688-B23
	HP c-Class Insight Control suite for BladeSystem 8 License, including 1 year of 24x7 Technical Support and Updates, FIO	439034-B23



Storage

Step 4: Select optional Redundant Onboard Administrator Capability

HP c7000 Onboard Administrator with KVM Option

456204-B21

NOTE: With 1 Gb/s Adapters.

NOTE: Models of the c7000 enclosure (part numbers 507019-B21 and AD361C) come with an Onboard Administrator with KVM as standard. Order this part number (456204-B21) when a second redundant Onboard Administrator is desired for a c7000 enclosure.

Step 5: Select 1 or more interconnect modules for each enclosure

The following is a list of various HP BladeSystem c-Class interconnect modules (Virtual Connect, Ethernet, and Fibre Channel), which have been tested for NEBS Level 3 compliance. For detailed interconnect options consult the specific interconnect QuickSpecs:

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

A pair of interconnects must be ordered if redundancy is required.

NOTE: Options for specific c-Class interconnects are NOT included in the list below. Consult the individual interconnect QuickSpecs to obtain part numbers for interconnect options such as cables, SFPs, etc.

HP BladeSystem c-Class Network Interconnects	HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem	455880-B21
	HP Virtual Connect FlexFabric 10GB/24-port Module for c-Class BladeSystem	571956-B21
	HP ProCurve 6120XG Blade Switch	516733-B21
	HP GbE2c Layer 2/3 Ethernet Blade Switch for c-Class BladeSystem	438030-B22
	Ethernet Pass-Through Module for HP BladeSystem	406740-B21
	Cisco Catalyst Blade Switch 3020 for HP c-Class BladeSystem	410916-B21
	Cisco Catalyst Blade Switch 1GbE 3120G for HP c-Class BladeSystem	451438-B21
	Cisco Catalyst Blade Switch 1/10GbE 3120X for HP c-Class BladeSystem	451439-B21
	HP Virtual Connect 8Gb 24-Port Fibre Channel Module for c-Class BladeSystem	466482-B21
HP BladeSystem c-Class SAN Interconnect	16 port FC Pass-thru Module for c-Class BladeSystem	403626-B21
	HP Brocade 8/12c SAN Switch for HP BladeSystem c-Class, Full Fabric	AJ820A
	HP Brocade 8/24c SAN Switch Power Pack for HP BladeSystem c-Class, Full Fabric	AJ822A
	HP Brocade 8/24c SAN Switch for HP BladeSystem c-Class, Full Fabric	AJ821A
	HP Brocade 8/12c SAN Switch Upgrade LTU	A5517A

c7000 Enclosure Options	HP c7000 Onboard Administrator with KVM	456204-B21
	NOTE: Models of the c7000 enclosure (P/Ns 507019-B21: 507015-B21, 507017-B21, 507016-B21, 507014-B21) come with an Onboard Administrator with KVM as standard. Order (P/N 456204-B21) when a second redundant Onboard Administrator is desired for a c7000 enclosure.	
	HP c7000 Enclosure 10K Rack Ship Bracket Option Kit	433718-B21
	NOTE: The shipping bracket is required for shipping a c7000 enclosure when installed in a HP 10000 G2 rack. It is not required for normal operation.	
	HP BladeSystem Replacement Enclosure Miscellaneous Blanks kit (contains 1 each of Power Supply Blank, Interconnect Module Blank, Onboard Administrator Blank, Active Cool Fan Blank)	412148-B21
	NOTE: This kit should only be ordered to replace lost or damaged blanks.	



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HP c-Class Server Blank and Coupler Option Kit (contains 1 x half-height server blank with coupler) 412150-B21

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.

HP Insight Control suites (ICE)

NOTE: Electronic licensing options are available for Insight Control suites software products. Please see the appropriate Insight Control QuickSpecs for additional information. www.hp.com/go/ice

Insight Control suite

HP Insight Control suite, No Media, 1-Server License including 1 year of 24x7 Technical Support and Updates 452148-B22

NOTE: Contains 1 license for each of RDP, PMP, VMM, VPM, IPM and iLO Advanced.

NOTE: This part number can be purchased as a single license or as multiple licenses with a single activation key. Customer will receive a license entitlement certificate via e-mail. The license entitlement certificate 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 and Update Service. Only available directly from HP and select resellers in the Americas region.

HP Insight Control Management Software Media Kit 436222-B21

NOTE: Insight Software DVD media without licenses. Contains Insight Manager and Essentials software products and components licensed by Insight Control Environment suite. Uses an integrated installer to perform quick and accurate software installation and updates.

NOTE: For additional license kits, please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html

HP Insight Control suite for Linux

HP Insight Control suite for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates 464423-B22

NOTE: This part number can be used to purchase one (1) license with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate 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 and Update Service.

NOTE: One certificate is shipped for each license.

HP Insight Control suite for Linux, Media pack (DVD) - No licenses included HP Insight Control suite for Linux Media Only Kit 464422-B22

NOTE: This optional Media pack DVD contains the ISO image for HP Insight Control suite for Linux, HP System Insight Manager, HP Insight Power Manager software, HP Insight Virtual Machine Manager software for ProLiant, and an integrated installer. Servers must be acquired separately.

NOTE: This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from: <http://www.hp.com/go/ice-linux> (click on Download button).

NOTE: For additional license kits, please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html

HP Virtual Connect

HP Virtual Connect Enterprise Manager for BL-c7000, No Media, 1-Enclosure License 459864-B21



Storage

Enterprise Manager

including 1 year of 24x7 Technical Support and Updates

NOTE: This license allows 1 BL-c7000 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

Step 6: Select 1 to 16 server blades for each enclosure

HP BL460c G6	HP ProLiant BL460c G6 CTO Blade	507864-B21
	Six Core Processor Option Kits	
	Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) BL460c G6 Kit, FIO - for second processor add 595726-B21	595726-L21
	Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) BL460c G6 Kit, FIO - for second processor add 595727-B21	595727-L21
	Quad-Core Processor Option Kits	
	Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit, FIO - for second processor add 507794-B21	507794-L21
	Intel® Xeon® processor HP E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) BL460c G6 Kit, FIO - for second processor add 507801-B21	507801-L21
Memory (Max 96GB)	Registered DIMM (RDIMM) Memory Options (NEBS tested)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
	Un-Registered DIMM (UDIMM) Memory Options (NEBS Tested)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator .	
Storage Controller Options	256 MB Cache Module	462968-B21
	Battery Kit Upgrade (for BBWC)	462969-B21
	NOTE: Requires 256 MB Cache Module.	
	512 MB BBWC Cache Module	462967-B21
Mezzanine Options	HP NC325m PCI Express Quad Port 1Gb Server Adapter for c-Class BladeSystem	416585-B21
	NOTE: If the NC325m is installed in mezzanine slot 1 of a half-height server, connectivity will be provided on 2 of the 4 ports.	
	HP NC360m Dual Port 1GbE BL-c Adapter	445978-B21
	HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21
	NOTE: If the NC364m is installed in mezzanine slot 1 of a half-height server, connectivity will be provided on only 2 of the 4 ports.	



Storage

HP NC382m Dual Port 1GbEm Multi-function BL-c Adapter	453246-B12
HP NC532m Dual Port 10GbE Multifunction BL-c Adapter	467799-B21
HP NC542m Dual Port Flex-10 Multifunction BL-c Adapter	539857-B21
HP NC550m 10Gb 2-port PCIe x8 Flex-10 Ethernet Adapter	581204-B21
HP NC551m Dual Port FlexFabric 10Gb Converged Network Adapter	580151-B21
HP NC553m 10Gb 2-port FlexFabric Adapter	613431-B21
HP BI-c Emulex LPe1205 8Gb FC HBA for HP BladeSystem	456972-B21
QLogic QMH2562 8Gb FC HBA for HP c-Class BladeSystem	451871-B21
QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21

Hard Drives

HP 600GB 6G SAS 10K SFF DP ENT HDD	581286-B21
HP 450GB 6G SAS 10K SFF DP ENT HDD	581284-B21
HP 300GB 6G SAS 10K SFF DP ENT HDD	507127-B21
HP 146GB 6G SAS 15K SFF DP ENT HDD	512547-B21
HP 72GB 6G SAS 15K SFF DP ENT HDD	512545-B21
HP 120GB 3G SATA SFF (2.5 inch ENT Perf 3yr Warranty Solid State Drive	632494-B21
HP 60GB 3G SATA SFF (2.5 inch) Midline 1yr Warranty Solid State Drive	572071-B21

HP PCI Expansion Blade	PCI Expansion Blade - 1 per server blade, uses 1 ½ height bay NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12753_div/12753_div.html	448018-B21
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HP Seismic Rack	HP Seismic Rack Cabinet	AH343A
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Rack Options for HP Seismic Rack	HP c7000 Enclosure Seismic Kit (one per enclosure) Adds 1U of rack space	AH330A
	HP Seismic cabinet caster kit Aids in moving configured cabinet. Reusable, one set per site.	AH336A
	HP Seismic cabinet concrete anchor (one per cabinet)	AH334A
	HP Seismic cabinet raised floor anchor (one per cabinet)	AH335A
	HP -48VDC Breaker Panel (one per enclosure) Includes 6 80 amp breakers	AH355A
	HP -48VDC 2.0m power cable for Breaker panel (for first c7000)	AH392A
	HP -48VDC 1.3m power cable for Breaker panel (for second c7000)	AH393A
	HP -48VDC 30 amp breaker kit for AH355A For use with -48VDC powered ProLiant and MSA2000 (includes two breakers)	AM336A
	HP 10000 G2 Rack Grounding Kit	AF074A
	HP Cable Management Tray for PCIe Expansion Blade One per enclosure, if PCIe Expansion Blade is present	AH394A



Storage

Service and Support Offerings (HP Care Pack Services)

NOTE: HP Care Pack services for the 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 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 UE477E

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

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

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

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

Support Plus 24

Onsite HW support 24x7, 4hr response and Insight Control suite for Linux SW Updates, SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time including. HP holidays, Electronic UK137E

Onsite HW support 24x7, 4hr response and Insight Control suite for BladeSystem SW Updates, SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time including. HP holidays, Electronic UH322E

Onsite HW support 24x7, 4hr response and Insight Control Data Center Edition SW Updates, SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time including. HP holidays, Electronic UH323E

Installation & Start-up Services

HP BladeSystem c7000 Infrastructure Installation and Startup Service for Blade Hardware and Insight Control Software, Electronic UE602E

HP BladeSystem C7000 Enhanced Network Installation and Startup Service, Electronic UE603E

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/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, Electronic UE436E

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

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

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

Hardware Installation, Electronic U5988E

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



Storage

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 UE728E

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 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

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 suite for Linux UF372E

Provides for the Installation and Startup of HP Insight Virtual Machine Manager software for ProLiant & HP Insight Server Migration software 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

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

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

BCS Flexible Care Packs Integrity blade server enclosure

NOTE: HP Care Pack services for the 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 c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the c7000 enclosure Care Pack services.



Storage

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#6Q6

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

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

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

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

Support Plus

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

Support Plus 24

Support Plus 24 Service HA110A3#6Q6

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

Critical Service - Mission Critical proactive environment 6-Hour Call-to-Repair onsite HW support HA112A3#6Q6

Installation & Start-up Services

HP BladeSystem c7000 Infrastructure Installation and Startup Service for Blade Hardware and Insight Control Software, Electronic HA114A1#57A

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 HA101A3#85J

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic HA103A3#85J

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



Storage

Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic HA101A3#87L

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#87L

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

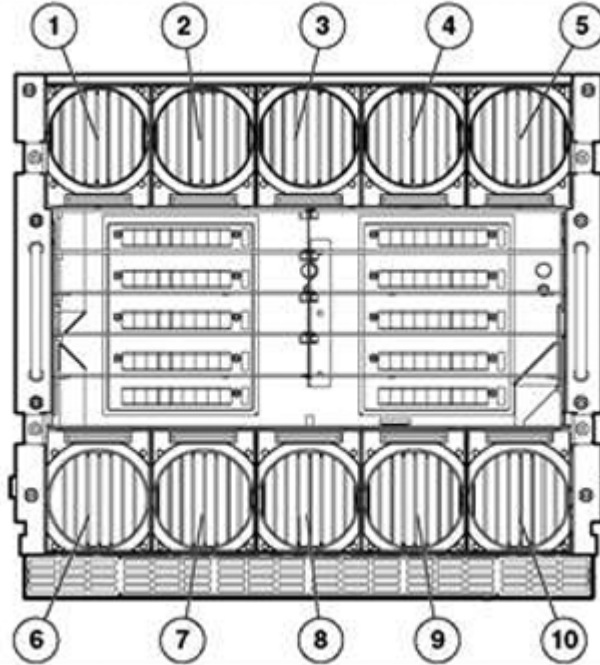
<http://www.hp.com/hps/carepack/services/>



Technical Specifications

Server Blade and Fan Population Guidelines

Fan bay numbering



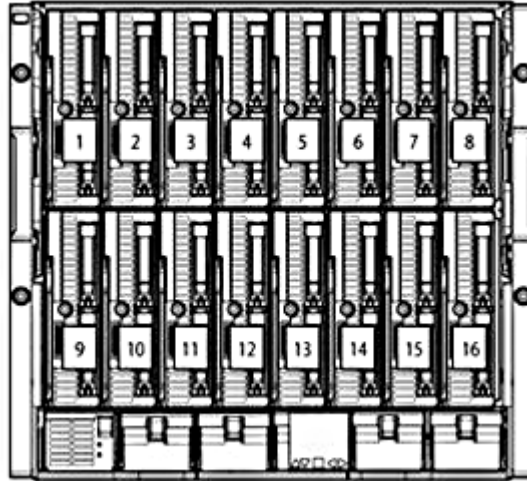
Fans must be placed in the following bays

Number of Fans	Fan Bays Used
4	4, 5, 9, 10
6	3, 4, 5, 8, 9, 10
8	1, 2, 4, 5, 6, 7, 9, 10
10	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

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.

Technical Specifications

Half-height server blade bay numbering

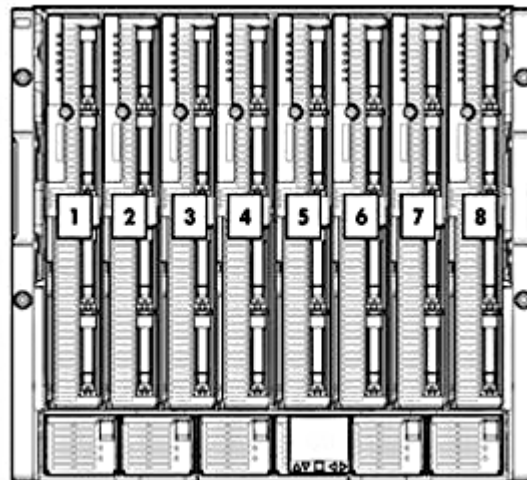


1. Device Bay 1
2. Device Bay 2
3. Device Bay 3
4. Device Bay 4
5. Device Bay 5
6. Device Bay 6
7. Device Bay 7
8. Device Bay 8

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 from 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



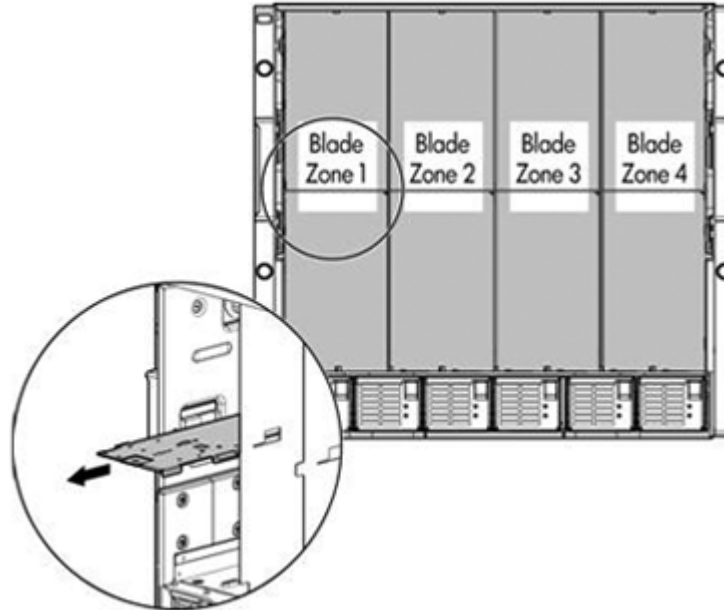
Technical Specifications

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 c7000 enclosure is divided into 4 quadrants by the vertical support metalwork. Within each quadrant a removable divider is used to support half height devices. To install a full-height blade in any quadrant this divider must be removed. As a consequence a quadrant 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 quadrant as both full-height and half-height blades, a bracket ships with each SB40c/Tape Blade that allows a half-height blade to be mounted on top of the storage blade.

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

HP BladeSystem c7000 Server Blade Enclosure	Dimensions	Height	17.4 in (442 mm)
		Width	17.6 in (447.04 mm)
		Depth	36.4 in (925 mm)
	Shipping Dimensions	Height	29.88 in (759 mm)
		Width	23.88 in (607 mm)
		Depth	39.88 in (1013 mm)
	DC Input Enclosure Weight	Unboxed	151 lb (68.5 Kg)
		Shipping	194 lb (88 Kg)
	Max Enclosure Weight (approximate)	Unboxed	450 lb (204 Kg)
		Shipping	493 lb (223.6 Kg)
	Temperature Range	Operating	50° to 95° F (10° to 35° C)
		Non-Operating	-22° to 140° F (-30° to 60° C)
Relative Humidity	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non- condensing.	



Technical Specifications

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 DC Power	Rated Input Voltage	-36 to -72 VDC
		Max Input Current per line cord	75A
		Max Input Power per line Cord	2700W
		-48V DC Power	Terminal lug: 45DG 4 AWG ¼ 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 -48V DC Hot-Plug Power Supply	2250W
	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	
			LWAd 7.5 Bels
			LpAm 57 dB
		Idle	
			LWAd 7.5 Bels
			LpAm 57 dB



Technical Specifications

Option Kits	Power Supply Option Shipping Dimensions	Height	8.75 in (223 mm)
		Width	8.63 in (219 mm)
		Depth	35.13 in (892 mm)
		Weight	8.5 lbs (3.85 Kg)
	Fan Option Shipping Dimensions	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)
	Onboard Administrator Option Shipping Dimensions	Height	2.50 in (63.5 mm)
		Width	9.88 in (251 mm)
		Depth	13.50 in (343 mm)
		Weight	4.0 lbs (1.8 Kg)

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.



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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