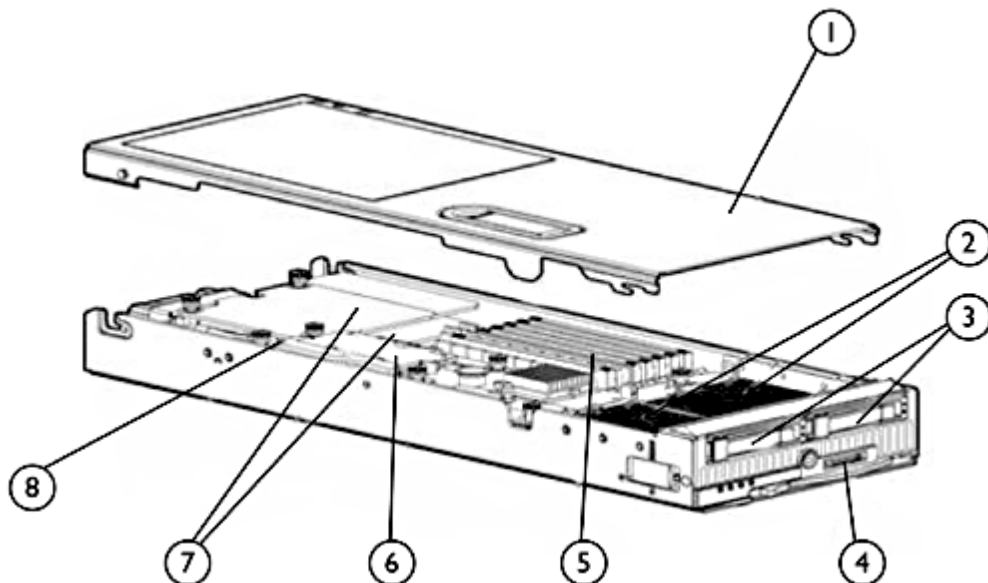


Overview



HP ProLiant BL460c Server Blade

- | | |
|---|--|
| 1. Access Panel | 6. HP Smart Array E200i Controller (optional battery-backed write cache) |
| 2. Up to two Quad-Core or Dual-Core Intel® Xeon® processors | 7. Two Mezzanine slots |
| 3. Small form factor (SFF) hot-plug drive bays | 8. Internal USB Connector |
| 4. Local I/O connector | |
| 5. Eight (8) PC2-5300, Fully Buffered DIMMs (DDR2-667) Memory Slots | |

What's New

The BL460c now offers Quad-Core processing power, featuring the latest Intel® Xeon®5300 sequence processors:

- Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 1066 FSB, 2x4MB L2 Cache)
- Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 1066 FSB, 2x4MB L2 Cache)

At A Glance

This document covers the HP ProLiant BL460c server blade only. For more information on HP BladeSystems c-Class Infrastructure and HP BladeSystem c-Class Interconnect Components, please see the following QuickSpecs:

HP BladeSystem c-Class Infrastructure QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/12517_div/12517_div.HTML

and HP BladeSystem c-Class Interconnect Components QuickSpecs:

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

The HP ProLiant BL460c provides greater 2P x86 server blade density without compromise and maximum power-efficiency with flexibility and choice.

HP ProLiant BL460c server blade includes:

Overview

- **Processor:**
 - Up to two Quad-Core Intel® Xeon® 5300 sequence processors
 - Up to two Dual-Core Intel® Xeon® processors 5100 or 5000 sequence
 - Supports up to 1.86 GHz 1066 MHz FSB-2x4 MB Level 2 cache, 3.0 GHz 1333 MHz or 1066 MHz FSB-4MB Level 2 cache memory or 3.2MV GHz 1066 MHz FSB-2x2MB Level 2 cache memory
 - Intel 5000P chipset supporting up to a 1333 MHz Front Side Bus
- **Memory:**
 - Up to 32 GB of memory, supported by (8) slots of PC2-5300 Fully Buffered DIMMs at 667 MHz
 - Advanced ECC memory support
 - Supporting memory interleaving (2x1); memory mirroring and online spare capacity.
- **Storage Controller:**
 - Integrated HP Smart Array E200i RAID controller with 64 MB cache (with optional battery-backed write-cache with an upgrade to 128MB cache (BBWC)). Supports RAID 0,1.
- **Internal Drive Support:**
 - Up to 2 small form factor (SFF) SAS or SATA hot plug hard disk drives
- **Network Controller:**
 - Two (2) integrated single port NC373i Multifunction Gigabit Server Adapters
 - One (1) additional 10/100 NIC dedicated to iLO 2 Management
- **Mezzanine Support:**
 - Two (2) additional I/O expansion slots via mezzanine card.
 - Supports up to (2) mezzanine cards
 - Dual-Port Fibre Channel Mezzanine (4-Gb) options for SAN connectivity (Choice of Emulex or QLogic).
 - Ethernet NIC Mezzanine options for additional network ports
 - HP NC325m PCI Express Quad Port Gigabit Server Adapter for c-Class BladeSystem
 - HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem
 - HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter
 - 4X DDR InfiniBand (IB) Mezzanine (20 Gb/s) options for low latency server interconnectivity (based on Mellanox technology)
 - 10GbE planned for future support
- **Internal USB Support:**
 - One (1) internal USB 2.0 connector for security key devices and USB drive keys
- **Form Factor:**
 - HP ProLiant BL460c server blade plugs vertically into the BladeSystem c7000 enclosure
- **Management:**
 - Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (includes virtual KVM and graphical remote console at no additional cost)
- **Operating Systems:**
 - Supports Windows, Linux, and Netware Operating Systems
- **Enclosures:**
 - HP ProLiant BL460c server blade plugs vertically into the BladeSystem c7000 enclosure
 - The HP BladeSystem c7000 enclosure is 17.4in (442 mm) in height, 17.5in (445 mm) wide and holds up to 16 HP ProLiant BL460c server blades plugged vertically.
 - Server blades, storage blades, interconnect modules, power supplies, fans, and redundant Onboard Administrator modules are all designed to fit into the c7000 enclosure.
- **Warranty:**
 - Protected by HP Services and a worldwide network of resellers and service providers. 3-year parts, 3-year Labor and 3-year on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SAS hard drives. SATA hard drives have a one year warranty.

Standard Features (Server Blade)

Processor	Quad-Core Processor Option Kits Quad -core Intel Xeon Processor E5320 (1.86 GHz, 1066 FSB) Quad -core Intel Xeon Processor E5310 (1.60 GHz, 1066 FSB) Dual-Core Processor Option Kits Dual-Core Intel Xeon processor 5160 (3.00 GHz, 1333 MHz FSB) Dual-Core Intel Xeon processor 5150 (2.66 GHz, 1333 MHz FSB) Dual-Core Intel Xeon processor 5148 (2.33 LV GHz, 1333 MHz FSB) Low Voltage (LV) Dual-Core Intel Xeon processor 5140 (2.33 GHz, 1333 MHz FSB) Dual-core Intel Xeon processor 5130 (2.00 GHz, 1333 MHz FSB)* Dual-core Intel Xeon processor 5120 (1.86 GHz, 1066 MHz FSB)* Dual-Core Intel Xeon processor 5110 (1.6 GHz, 1066 MHz FSB) Dual-core Intel Xeon processor 5063 (3.2 GHz, 1066 MHz FSB) Mid-Voltage Dual-core Intel Xeon processor 5050 (3.0 GHz, 667 MHz FSB)* NOTE: Intel 5300, 5100, and 5000 Sequence processors are 64-bit and support Intel VT. Intel 5100 and 5000 Sequence processors are dual-core; Intel 5300 Sequence processors are quad-core. Intel 5000 Sequence processors, Dual-core, support Hyper Threading, and Intel VT. NOTE: *Offered through CTO only.
Upgradeability	Upgradeable to 2 processors
Cache Memory	2x2MB Level 2 cache memory (5000 Sequence) 1x4MB Level 2 cache memory (5100 Sequence) 2x4MB Level 2 cache memory (5300 Sequence)
Chipset	Intel® 5000P Chipset
Memory	Type PC2-5300 Fully Buffered DIMMs at 667 MHz Standard 1 GB (2 x 512 MB) 2 GB (2 x 1 GB) Maximum 32 GB (8 x 4 GB) NOTE: Memory must be installed in pairs.
Network Adapter	(2) integrated single port NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine One (1) additional 10/100 NIC dedicated to iLO 2 Management
Expansion Slots	Two Mezzanine slots (One x8 and one x4)
Integrated Manageability	Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (integrated on motherboard)

Standard Features (Server Blade)

Storage Controller	HP Smart Array E200i Controller	64MB memory module supports RAID 0,1 Available upgrades: 128MB with Battery-backed write cache	
Maximum Internal Storage	Hot Plug Serial Attach SCSI (SAS)	292GB SAS	2 x 146GB Serial SCSI
	Hot Plug Serial ATA (SATA)	120GB SATA	2 x 60GB Serial ATA
Graphics	Integrated ATI RN-50 1280 x 1024 x 16M color (32 MB DDR1 memory)		
Graphics Resolution Supported	Resolution Color Depths	Depths 1280 x 1024, 16.7M, 64k, 256,16 1024 x 768, 16.7M, 64k, 256,16 800 x 600, 16,7M, 64k, 256, 16 640 x 480, 16,7M, 64k, 256, 16	
Fibre Channel on the HP ProLiant BL460c server blade	<p>Two optional Fibre Channel HBAs are supported by the HP ProLiant BL460c. Both mezzanine circuit boards connect directly to the server blade system board. These Fibre Channel HBAs are available via option kits and must be ordered separately.</p> <p>Two option kits</p> <p>Emulex LPe1105-HP 4Gb FC HBA for HP c-Class BladeSystem (403621-B21)</p> <ul style="list-style-type: none"> Based on the same field-proven ASIC, firmware, and driver technology as Emulex's renowned LPe1150 HBA, the Emulex LPe1105-HP is fully driver compatible with all Emulex HBAs <p>QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem (403619-B21)</p> <ul style="list-style-type: none"> Uses common drivers which means that customers can standardize on one QLogic driver whether they are using the QMH2462 or other 4Gb and 2Gb HBAs powered by QLogic <p>Emulex and QLogic Fibre Channel HBAs feature:</p> <ul style="list-style-type: none"> Optimal performance utilizing PCI Express 4/2/1Gb/s auto negotiating speeds Dual-ports for redundant path connections Up to two FC HBAs per server blade providing redundant FC HBA support Optimized for HP StorageWorks and supported by third party SAN vendors Support for Microsoft® Windows® and Linux operating systems environments 		
Compatible SAN	<p>HP ProLiant BL460c server blades are optimized for HP StorageWorks MSA, EVA and XP</p> <p>HP ProLiant 460c server blades are compatible with select 3rd party SANs (please see blade storage page for more details: http://h18000.www1.hp.com/products/servers/proliant-bl/c-Class/storage.html)</p>		

Standard Features

Insight Control Data Center Edition

Insight Control Data Center Edition delivers foundation management for HP BladeSystem lifecycles, including hardware resource deployment, health monitoring, software version control, performance monitoring, and vulnerability scanning and patch management.

Installs the following components by default using the wizard-based integrated installer:

- HP Systems Insight Manager
- Rapid Deployment Pack
- Performance Management Pack
- Vulnerability and Patch Management Pack

Additional ProLiant Essentials software and management tools included on the Insight Control Data Center Edition DVD can be installed manually.

- Virtualization Management Suite
- Workload Management Pack
- HP Open Service Event Manager
- HP Instant Support Enterprise Edition

NOTE: For Licensing and Packaging Options please see the options section of this QuickSpecs.

NOTE: Insight Control Data Center Edition can be delivered with HP BladeSystem c-Class enclosures with either 8-free evaluation licenses (30-days) or full purchased licenses for 8 or 16 blade servers. For additional information on HP c-Class Infrastructure please visit: HP BladeSystem c-Class Infrastructure QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/12517_div/12517_div.HTML

NOTE: For additional product and licensing information about Insight Control Data Center Edition, HP Systems Insight Manager and Essentials software refer to <http://www.hp.com/servers/proliantessentials>.

Unified Foundation Management and Essentials Software Plugins

HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.
ProLiant Essentials Rapid Deployment Pack	Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant blade servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install HP ProLiant Support Pack drivers using images and scripted profiles.
ProLiant Essentials Performance Management Pack	ProLiant Essentials Performance Management Pack detects, analyzes, and explains hardware bottlenecks on HP ProLiant servers, HP Integrity servers and shared storage.
The Vulnerability and Patch Management Pack	The Vulnerability and Patch Management Pack integrates and simplifies the assessment and remediation of operating system vulnerabilities into HP Systems Insight Manager for Windows and Linux platforms.

Standard Features

Insight Management Agents	<p>The Insight Management Agents should be installed on all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers.</p> <p>Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack</p> <p>For additional information about the Management Agents and the HP System Management Homepage please visit the management Web site at http://www.hp.com/servers/manage.</p>
Subscriber's Choice	<p>Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.</p>
ProLiant Support Packs and ROMPaq, software	<p>The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through ProLiant Support Packs the ProLiant Essentials Rapid Deployment Pack, SmartStart or downloaded from Software and Drivers download pages website at http://www.hp.com/go/support.</p>

Optional ProLiant Essentials Value Packs

Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

- Accelerated iSCSI Pack - enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network.
- Integrated Lights-Out Select Pack - upgrades the Integrated Lights-Out processor with scripted and command line virtual media, Power Regulator reporting and enterprise security
- Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions, plus it provides an extra layer of protection. The virus throttle feature of the solution slows the propagation of fast spreading virus.
- RDMA Pack enables Remote Direct Memory Access (RDMA) on an HP Multifunction server adapter. RDMA is a communications protocol that provides direct transmission of data from the memory of one computer to the memory of another with minimal demands on the host CPU. RDMA provides a high-speed, high-performance connection between servers on the same network. RDMA Pack licenses are port-based; the licensed seats are available to individual ports on the Multifunction server adapter..
- Server Migration Pack - P2P Edition: Upgrading or replacing your existing server? Effortlessly transition to new servers with automated, accurate and affordable migration of OS, application and data.
- Virtualization Management Software - Get the most out of server virtualization by unifying the management of physical and virtual servers in HP Systems Insight Manager. The Virtual Machine Management Pack plug-in provides central management and control of VMware and Microsoft virtual machines and provides physical host to virtual machine association. The Server Migration Pack plug-in automates the manual task of migrating servers between physical or virtual

Standard Features

platforms.

- Workload Management Pack - provides easier management of complex environments, improving overall server utilization and enabling Windows® 2000 customers for the first time to confidently deploy multiple applications on a single multiprocessor ProLiant Server.

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

SmartStart

SmartStart is a tool that simplifies single server setup, providing a rapid way to deploy reliable and consistent server configurations. SmartStart 7.60 and later can now deploy the HP ProLiant BL460c using the I/O port with an attached USB CD-ROM device. To obtain a copy of SmartStart for your blade server order or download your copy from the SmartStart web site. For more information, please visit the SmartStart Web site at <http://www.hp.com/servers/smartstart>.

OS Support

Microsoft Windows 2000 Server
Microsoft Windows 2000 Advanced Server
Microsoft Windows Server 2003, Standard Edition
Microsoft Windows Server 2003 R2, Standard Edition
Microsoft Windows Server 2003, Standard x64 Edition
Microsoft Windows Server 2003 R2, Standard x64 Edition
Microsoft Windows Server 2003, Web Edition
Microsoft Windows Server 2003 R2, Web Edition
Microsoft Windows Server 2003, Enterprise Edition
Microsoft Windows Server 2003 R2, Enterprise Edition
Microsoft Windows Server 2003, Enterprise x64 Edition
Microsoft Windows Server 2003 R2, Enterprise x64 Edition
Red Hat Enterprise Linux 3
Red Hat Enterprise Linux 4
SUSE LINUX Enterprise Server 9
SUSE LINUX Enterprise Server 10
Netware 6.5

NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: <http://www.hp.com/go/supportos>.

NOTE: For an up-to-date listing of the latest drivers available for the ProLiant BL c-Class, please see: <http://www.compaq.com/support/files/server/us/index.html>.

NOTE: For a more complete and up-to-date information on Linux support, please visit HP Linux website at: <http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.html>.

Supported Software Options

VMware Virtualization Software

NOTE: For more information on HP's Certified and Supported HP ProLiant Servers, please visit the VMware Server Support Matrix at: <http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html>

Standard Features

Intelligent Manageability Integrated Lights-Out 2 Standard Blade Edition (iLO 2)
Virtual KVM(Text and Graphical modes)
Virtual Media (CD ROM ,floppy and USB flash drive) Virtual Power Button Control Integrated Remote Console Embedded system health Blade power consumption reading Browser, command line and scripted access
Dedicated LAN Connectivity
Automatic IP Configuration via DHCP/DNS/WINS
Industry Standard RC4, 128-bit Secure Sockets Layer (SSL) and Secure Shell (SSH) Security
IML and iLO Event Logging
Support for 12 user accounts with customizable access
Upgrade to HP ProLiant Essentials Integrated Lights-Out Select Pack
NOTE: Advanced features such as Graphical Remote Console and browser accessible Virtual Floppy/CD-ROM are included with the BL c-Class server.

Availability Dual-Port Fibre Channel Mezzanine Card for redundant SAN connection
Two (2) hot-plug SAS/SATA hard drive bays and integrated RAID (HP Smart Array E200i) controller on every server blade (Battery-backed write cache is optional.)
Redundant ROM on each server blade
Advanced ECC Memory - can correct a multi-bit error (up to 4 bits) that occurs within one memory chip
Memory Mirroring
Memory Online Spare Capacity Network adapter teaming (network fault tolerance, transmit load balancing, switch-assisted load balancing)

Security One (1) internal USB 2.0 connector for security key devices and USB drive keys

Power-on password
Administrator's password
Integrated Lights-Out 2 has 12 customizable user accounts and SSL encryption
Integrated Lights-Out 2 can be disabled via a Global Setting

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 Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

HP Enterprise Configurator The HP eCo-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.

Standard Features

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. 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.

NOTE: Server Warranty includes 3-year Parts, 3-year Labor, 3-year on-site support. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

NOTE: Server Blade Enclosure Limited Warranty includes 3-year Parts, 3 year Labor, 3-year on-site support.

NOTE: Server Blade Interconnect Limited Warranty includes 1-year Parts, 1 year Labor, 1-year on-site support.

The HP Care Pack service part numbers below for 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 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 Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module and GbE2c Ethernet Blade Switch and Cisco Catalyst 3020 Blade Switch.

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

To fully capitalizing 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.

Enhanced Care - Minimum recommended service support offer designed to ensure customers have access to expert assistance, whenever they need it.

- *4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years.*

Continuance Care - Recommended service delivering cost-effective support options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem identification and resolution.

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

Total Care - Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, integrated hardware and software services

- *Support Plus 24 - Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays.*

Deployment Services - HP Installation and Start Up services designed to take time, risk, and worry out of the deployment of HP BladeSystem servers - and free customers IT support staff to focus on what they do best, their business.

- *Installation & Start-Up service for HP BladeSystem Infrastructure plus HP BladeSystem Enhanced*

Standard Features

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, excl. HP holidays

For a complete listing of service offerings and information visit:

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

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

Models

Quad-Core Models

<p>HP ProLiant BL460c E5310 1G (1P) 435456-B21</p>	<p>Processor(s) One of the following depending on model</p>	<p>(1) Quad-core Intel Xeon Processor E5310 (1.60 GHz, 1066 FSB) (1) Quad-core Intel Xeon Processor E5320 (1.86GHz, 1066 FSB)</p>
<p>HP ProLiant BL460c E5320 2G (1P) 435457-B21</p>	<p>Cache Memory</p> <p>Memory One of the following depending on model</p> <p>Network Adapter</p> <p>Storage Controller</p> <p>Hard Drives</p> <p>Internal Storage</p> <p>Optical Drive</p> <p>Form Factor</p>	<p>2x4 MB Level 2 cache</p> <p>2 GB (2 x 1 GB) PC2-5300, FBD DDR2-667 1 GB (2x512 MB) PC2-5300, FBD DDR2-667</p> <p>(2) integrated single port NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management</p> <p>HP Smart Array E200i Controller with 64MB (optional battery-backed write cache)</p> <p>No drives included; (2) SFF SAS/SATA drive bays</p> <p>292GB SAS 120GB SATA</p> <p>None</p> <p>Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure</p>

Dual-Core Models

<p>HP ProLiant BL460c 5160 DC 2G (1P) 416656-B21</p>	<p>Processor(s) One of the following depending on model</p>	<p>(1) Dual-core Intel Xeon processor 5160 (3.00 GHz, 1333 FSB) (1) Dual-core Intel Xeon processor 5150 (2.66 GHz, 1333 FSB) (1) Dual-core Intel Xeon processor 5148 (2.33 GHz LV, 1333 FSB) (1) Dual-core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB) (1) Dual-core Intel Xeon processor 5110 (1.6 GHz, 1066 FSB) (1) Dual-core Intel Xeon processor 5063 (3.2 GHz, MV, 1066 FSB)</p>
<p>HP ProLiant BL460c 5150 DC 2G (1P) 416655-B21</p>	<p>Cache Memory</p>	<p>2x2MB Level 2 cache memory (5000 Sequence) 1x4MB Level 2 cache memory (5100 Sequence)</p>
<p>HP ProLiant BL460c 5148 2G (1P) 432636-B21</p>	<p>Memory One of the following depending on model</p>	<p>2 GB (2 x 1 GB) PC2-5300, FBD DDR2-667 1 GB (2x512 MB) PC2-5300, FBD DDR2-667</p>
<p>HP ProLiant BL460c 5140 DC 2GB (1P) 416654-B21</p>	<p>Network Adapter</p>	<p>(2) Embedded single port NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management</p>
<p>HP ProLiant BL460c 5110 DC 1GB (1P) 416653-B21</p>	<p>Storage Controller</p> <p>Hard Drives</p> <p>Internal Storage</p>	<p>HP Smart Array E200i Controller with 64MB (optional 128MB battery-backed write cache)</p> <p>No drives included; (2) SFF SAS/SATA drive bays</p> <p>292GB SAS 120GB SATA</p>
<p>HP ProLiant BL460c 5063 DC, 2GB (1P) 404664-B21</p>	<p>Optical Drive</p> <p>Form Factor</p>	<p>None</p> <p>Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure</p>

Configuration Information - Factory Integrated Models (North America only)

NOTE: For Configure to Order requirements within EMEA region, please consult local Sales Contact.

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: This product offering does not support HP Factory Express Server Configuration Level 1.

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

Step 1: Base Server Blade Configuration (Select a configurable Blade)

Models	HP ProLiant BL460c CTO Blade (North America)	404667-B21
	Configurable Model ships with:	
	(2) Integrated single port NC373i Multifunction Gigabit NICs (1) additional 10/100 NIC dedicated to iLO 2 Management	
	Integrated HP Smart Array E200i RAID controller supporting RAID 0/1	
	NOTE: Controller cache module selection is required. Select either the standard 64 MB module or the optional 128 MB module in step 2 below.	
	Two small form factor (SFF) SAS/SATA hot plug hard drive bays	
	Integrated Lights-Out 2 Standard Blade Edition	

Step 2: Choose Required Options (one of the following from each list unless otherwise noted):

Processors	For single processor configuration choose:	
	Quad-core Process Option Kits	
	Quad-core Intel Xeon Processor E5320 (1.86GHz, 1066 FSB)	435563-L21
	NOTE: If 2 processors are desired, select one 435563-L21 and one 435563-B21.	
	Quad-core Intel Xeon Processor E5310 (1.60GHz, 1066 FSB)	435562-L21
	NOTE: If 2 processors are desired, select one 435562-L21 and one 435562-B21	
	Dual-core Process Option Kits	
	Dual-Core Intel Xeon processor 5160 (3.0 GHz, 1333FSB) Option Kit, FIO Base	416660-L21
	NOTE: If 2 processors are desired, select one 416660-L21 and one 416660-B21.	
	Dual-Core Intel Xeon processor 5150 (2.66 GHz 1333 FSB) Option Kit, FIO Base	416659-L21
	NOTE: If 2 processors are desired, select one 416659-L21 and one 416659-B21.	
	Dual-core Intel Xeon processor 5148 (2.33 GHz LV, 1333 FSB) Low-Voltage Option Kit, FIO Base	419736-L21
	NOTE: If 2 processors are desired, select one 419736-L21 and one 419736-B21.	
	Dual-Core Intel Xeon processor 5140 (2.33 GHz 1333 FSB) Option Kit, FIO Base	416658-L21
	NOTE: If 2 processors are desired, select one 416658-L21 and one 416658-B21.	
	Dual-Core Intel Xeon processor 5130 (2.00 GHz, 1333 MHz FSB) Option Kit, FIO Base	419735-L21
	NOTE: If 2 processors are desired, select one 419735-L21 and one 419735-B21.	
	Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 MHz FSB) Option Kit, FIO Base	419734-L21
	NOTE: If 2 processors are desired, select one 419734-L21 and one 419734-B21.	
	Dual-Core Intel Xeon processor 5110 (1.6 GHz, 1066 FSB) Option Kit, FIO Base	416657-L21
	NOTE: If 2 processors are desired, select one 416657-L21 and one 416657-B21.	
	Dual-Core Intel Xeon processor 5063 (3.2 GHz MV, 1066 FSB) (Mid-Voltage) Option Kit, FIO Base	409598-L21
	NOTE: If 2 processors are desired, select one 409598-L21 and one 409598-B21.	

Configuration Information - Factory Integrated Models (North America only)

	Dual-Core Intel Xeon processor 5050 (3.0 GHz, 667 FSB) Option Kit, FIO Base	409597-L21
	NOTE: If 2 processors are desired, select one 409597-L21 and one 409597-B21.	
Memory	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
	NOTE: Must be installed in pairs	
Controller Cache	64 MB Cache - FIO Only	405102-B21
	128 MB Battery-Backed Cache Enabler	351580-B21
	NOTE: Supports the HP Smart Array E200i Controller	

Step 3: Choose Additional Factory Integratable Options

Fibre Channel Mezzanine Options	Emulex LPe1105 FC Dual Channel 4Gb, PCI-E-to-Fibre Channel Host Bus Adapter	403621-B21
	QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21
Ethernet Mezzanine Options	HP NC325m PCI Express Quad Port Gigabit Server Adapter for c-Class BladeSystem	416585-B21
	NOTE: The NC325m Server Adapter must be installed in Mezzanine Slot 2 of a half-height server blade to provide connectivity on all 4 ports. If installed in Mezzanine Slot 1 of a half-height server blade, the NC325m Server Adapter will provide connectivity on 2 of the 4 ports.	
	HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem	406771-B21
	HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter for c-Class BladeSystem	406770-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, including server blade enclosures interconnect options and power subsystem options; please see the following QuickSpecs:

HP BladeSystem c-Class Infrastructure QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/12517_div/12517_div.HTML

and HP BladeSystem c-Class Interconnect Components QuickSpecs:

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

Options

<p>ProLiant Essentials Value Pack Software</p>	<p>ProLiant Essentials Accelerated iSCSI Pack for Embedded Multifunction Gigabit Server Adapters</p> <p>ProLiant Essentials Accelerated iSCSI Pack, Single License 407484-B22</p> <p>NOTE: For additional ProLiant Accelerated iSCSI Pack License Kits- please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12466_div/12466_div.HTML</p> <p>ProLiant Essentials Integrated Lights-Out Select Pack</p> <p>ProLiant Essentials Integrated Lights-Out Select Pack, 1 server License 413119-B21</p> <p>ProLiant Essentials Integrated Lights-Out Select Pack 8-server License 413122-B21</p> <p>Featuring: sophisticated remote control and security features for HP BladeSystem servers and ProLiant ML/DL servers in text console environments. NOTE: For additional ProLiant Essentials Integrated Lights-Out Packs please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.HTML</p> <p>ProLiant Essentials Intelligent Networking Pack Windows Edition and Linux Edition</p> <p>ProLiant Essentials Intelligent Networking Pack - Windows Edition, Single Server License 436225-B21</p> <p>NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.</p> <p>ProLiant Essentials Intelligent Networking Pack Linux Edition, Single Server License 436229-B21</p> <p>NOTE: For use with a single server. Contains one license with a unique license activation key and documentation. NOTE: For additional ProLiant Intelligent Networking Pack License Kits-Windows Edition please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12062_div/12062_div.HTML NOTE: For additional ProLiant Intelligent Networking Pack License Kits-Linux Edition please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12327_div/12327_div.HTML</p> <p>ProLiant Essentials Server Migration Pack</p> <p>ProLiant Essentials Server Migration Pack, Single-Migration License 435663-B21</p> <p>NOTE: Contains one license, enabling 1 server migration, with a unique license activation key and documentation. NOTE: This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005. NOTE: For additional ProLiant Server Migration Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML</p> <p>HP ProLiant Essentials Remote Directory Memory Access(RDMA) Pack for Embedded Multifunction Gigabit Server Adapters</p> <p>HP Remote Directory Memory Access (RDMA) Embedded Multifunction Pack, 1 License 407478-B22</p> <p>NOTE: For additional ProLiant RDMA Multifunction Pack License Kits- please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12573_div/12573_div.HTML</p> <p>ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition</p>
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Options

ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition, Single-Migration License 412978-B21

NOTE: For additional ProLiant Server Migration Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12467_div/12467_div.HTML

ProLiant Essentials Workload Management Pack

ProLiant Essentials Workload Management Pack, Single Server License 303284-B21

NOTE: For additional ProLiant Workload Management Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11452_div/11452_div.HTML

ProLiant Essentials Virtual Machine Management Pack

ProLiant Essentials Virtual Machine Management Pack, Single-Server License 435661-B21

NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.

NOTE: For additional ProLiant Virtual Machine Management Pack License Kits please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/proliantessentials>.

Processors

Quad-core Process Option Kits

Quad-core Intel Xeon Processor E5320 (1.86GHz, 1066 FSB) 435563-B21

Quad-core Intel Xeon Processor E5310 (1.60GHz, 1066 FSB) 435562-B21

Dual-Core Process Option Kits

Dual-Core Intel Xeon processor 5160 (3.0 GHz MV, 1333 FSB) Option Kit 416660-B21

Dual-Core Intel Xeon processor 5150 (2.66GHz, 1333 FSB) Option Kit 416659-B21

Dual-Core Intel Xeon processor 5148 (2.33 LV GHz, 1333 FSB) Option Kit 419736-B21

Dual-Core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB) Option Kit 416658-B21

Dual-Core Intel Xeon processor 5130 (2.00 GHz, 1333 FSB) Option Kit 419735-B21

Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB) Option Kit 419734-B21

Dual-Core Intel Xeon processor 5110 (1.6 GHz, 1066 FSB) Option Kit 416657-B21

Dual-Core Intel Xeon processor 5063 (3.2 GHz MV, 1066 FSB) (Mid-Voltage) Option Kit 409598-B21

Dual-Core Intel Xeon processor 5050 (3.0 GHz, 667 FSB) Option Kit 409597-B21

Memory

1 GB FBD PC2-5300 2 x 512 MB Kit 397409-B21

2 GB FBD PC2-5300 2 x 1 GB Kit 397411-B21

4 GB FBD PC2-5300 2 x 2 GB Kit 397413-B21

8 GB FBD PC2-5300 2 x 4 GB Kit 397415-B21

NOTE: Must be installed in pairs.

Options

Hard Drives	Serial Attached SCSI (SAS) SFF Hot Plug	
	HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 36GB 3G SAS 10K SFF SP HDD	375859-B21
	NOTE: SAS drives have a 3 year warranty.	
	NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.HTML (Worldwide)	
	SFF SATA Hot Plug	
	HP 60GB 1.5G SATA 5.4K SFF HDD	379306-B21
	NOTE: SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/12091_div/12091_div.HTML (Worldwide)	
Controller Cache	128MB Battery-Backed Cache Enabler NOTE: Supports the HP Smart Array E200i Controller.	351580-B21
Ethernet Mezzanine Options	HP NC325m PCI Express Quad Port Gigabit Server Adapter for c-Class BladeSystem	416585-B21
	NOTE: The NC325m Server Adapter must be installed in Mezzanine Slot 2 of a half-height server blade to provide connectivity on all 4 ports. If installed in Mezzanine Slot 1 of a half-height server blade, the NC325m Server Adapter will provide connectivity on 2 of the 4 ports.	
	HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem	406771-B21
	HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter for c-Class BladeSystem	406770-B21
Fiber Channel Mezzanine Options	Emulex LPe1105 FC Dual Channel 4Gb, PCI-E-to-Fibre Channel Host Bus Adapter	403621-B21
	QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem NOTE: Supports HP c-Class BladeSystems	403619-B21
HP InfiniBand Mezzanine Options	HP 4X DDR IB Mezzanine HCA for HP BladeSystem c-Class	410533-B21
	HP HPCD 4X DDR IB Mezzanine HCA for HP BladeSystem c-Class NOTE: HP 4X DDR InfiniBand Mezzanine HCAs must be installed in Mezzanine Slot 2 of a half-height server blade.	409377-B21

Options

<p>HP StorageWorks SB40c Storage Blade</p>	<p>HP StorageWorks SB40c Storage Blade</p> <p>NOTE: Please see the SB40c Storage Blade QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.HTML (Worldwide)</p>	<p>411243-B21</p>
<hr/>		
<p>HP StorageWorks Modular Smart Array 1000</p>	<p>HP StorageWorks Modular Smart Array 1000</p> <p>NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)</p>	<p>201723-B22</p>
<hr/>		
<p>Tape Libraries</p>	<p>HP StorageWorks MSL2024 Tape Library</p> <p>HP StorageWorks MSL2024 1 Ultrium 960 Drive Library</p> <p>HP StorageWorks MSL2024 1 Ultrium 960 4GB FC Library</p> <p>HP StorageWorks MSL2024 1 Ultrium 920 Drive Library</p> <p>HP StorageWorks MSL2024 2 Ultrium 920 Drive Library</p> <p>HP StorageWorks MSL2024 1 Ultrium 448 Drive Library</p> <p>HP StorageWorks MSL2024 2 Ultrium 448 Drive Library</p> <p>HP StorageWorks MSL4048 Tape Library</p> <p>HP StorageWorks MSL4048 1 Ultrium 448 Drive Library</p> <p>HP StorageWorks MSL4048 2 Ultrium 448 Drive Library</p> <p>HP StorageWorks MSL4048 1 Ultrium 960 Drive Library</p> <p>HP StorageWorks MSL4048 1 Ultrium 960 4GB FC Library</p> <p>HP StorageWorks MSL4048 2 Ultrium 960 Drive Library</p> <p>HP StorageWorks MSL4048 2 Ultrium 960 4GB FC Library</p> <p>HP StorageWorks MSL4048 1 Ultrium 920 Tape Library</p> <p>HP StorageWorks MSL4048 2 Ultrium 920 Tape Library</p> <p>HP StorageWorks MSL6000 Tape Library</p> <p>Ultrium 960 technology</p> <p>HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library</p> <p>HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library</p> <p>HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library</p> <p>HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library</p> <p>Ultrium 460 technology</p> <p>HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library</p> <p>HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library</p> <p>HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library</p> <p>NOTE: Please reference the MSL6000 Tape Library 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</p> <p>HP StorageWorks Virtual Library Systems</p> <p>HP StorageWorks 300 Virtual Library System Gateway Base Unit</p>	<p>AG115A</p> <p>AG326B</p> <p>AH169A</p> <p>AH170A</p> <p>AG116A</p> <p>AG117A</p> <p>AG320A</p> <p>AG321A</p> <p>AG322A</p> <p>AG324B</p> <p>AG323A</p> <p>AG325B</p> <p>AH171A</p> <p>AH172A</p> <p>AD606B</p> <p>AD608B</p> <p>AD607B</p> <p>AD609B</p> <p>AD598B</p> <p>AD600B</p> <p>AD601B</p> <p>AH138A</p>

Options

HP StorageWorks 1002i 2TB Virtual Library System	AG124A
HP StorageWorks 6105 Virtual Library System	AF728A
HP StorageWorks 6510 Virtual Library System	AF729A
HP StorageWorks 6840 Virtual Library System	AG051A
HP StorageWorks 6109 Virtual Library System	AG167A
HP StorageWorks 6518 Virtual Library System	AG168A
HP StorageWorks 6870 Virtual Library System	AG169A

NOTE: Please reference the Virtual Library Systems 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>

Cluster Options

NOTE: For configuration/certification options for the HP Parallel Database Cluster for Oracle RAC please go to: <http://www.hp.com/solutions/highavailability/oracle>

NOTE: For additional information regarding the HP ProLiant Cluster for HA/F500 please see the following QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/10232_div/10232_div.html
(Worldwide)

ProLiant Cluster Starter Kit	364023-B22
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NOTE: For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html
(Worldwide)

HP HA/F200 for Entry SAN Cluster	364026-B22
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ProLiant Cluster HA/F500 for the Enterprise SAN	364024-B21
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NOTE: For additional information regarding the ProLiant Cluster HA/F500 for Enterprise SAN please see the following QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11933_div/11933_div.html
(Worldwide)

HP Serviceguard for Linux A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (single license version)	307754-B26
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HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (2 node license cluster kit)	305199-B26
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HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription	T2798AA#001
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HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription	T2798AA#003
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NOTE: For additional information regarding the HP Serviceguard for Linux License, please see the following QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html
(Worldwide)

USB Options

HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
512MB HP DriveKey II	ED516AA
HP 1GB Drive Key II- USB 2.0 Flash Drive	AG382AA
USB 2.0 4-port Hub	DG954A
2004 Standard Keyboard USB	DT528A#xxx

Options

Service and Support Offerings (HP Care Pack Services)

NOTE: The HP Care Pack service part numbers below for 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.

Hardware Services On-site Service

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UE458E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE459E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE460E

Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	UE473E
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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 Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module, Cisco Catalyst 3020 Blade Switch and GbE2c Ethernet Blade Switch.

Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	UE477E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UE478E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE479E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE480E
Hardware Installation, Electronic	U5988E

NOTE: The HP Care Pack service part numbers below covers the HP 4Gb, 12 Port SAN Switch & 4Gb, 12 Port SAN Switch Upgrade LTU.

Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	UC007E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UC008E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UC009E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UC023E
Hardware Installation, Electronic	U5988E

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

Hardware Services On-site Service

Options

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, 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 incl. HP holidays, Electronic UE729E

Installation & Start-up Services

HP Installation & Startup Service for HP BladeSystem Infrastructure, Electronic UE602E

NOTE: Provides for an integrated hardware and software implementation that includes remote service planning, onsite deployment of hardware and software, installation verification testing and customer orientation. Hardware deployment covers the installation of a single BladeSystem enclosure that include server blades (up to 16), Ethernet network interconnect, and power options. Software deployment covers the installation and configuration of HP BladeSystem Essential Insight Control Datacenter Edition which includes Systems Insight Manager (SIM), HP Rapid Deployment Pack (RDP), Vulnerability and Patch Management Pack (VPM) and Performance Management Pack (PMP) and deploy up to two editions of either Windows or Linux, using scripted operating system installation software.

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

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

Provides for the Installation and Start-up of ProLiant Essentials Rapid Deployment Pack, 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 ours, standard office days.

Provides for the Installation and Start-up of Rapid Deployment Pack Implementation of Rapid Deployment Pack (Basic) (Electronic) UA042E

HP ProLiant Essentials Vulnerability and Patch Management Pack Installation and Startup Service, Electronic UC929E

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

NOTE: For more information, customer/resellers can contact

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

Software Operating Environment Care Packs

Microsoft Software Operating Environment Software Telephone 9x5 - 3 incident (Electronic) U8169E

Red Hat Software Operating Environment Software Telephone 9x5 - 10 incident (Electronic) U3402E

Options

SUSE Software Operating Environment Software Telephone 9x5 - 3 incident (Electronic)	U9615E
ProLiant Essentials Operating Environment, - 5 Day, 9x5,1 year, 3 incident (Electronic)	U8222E
ProLiant Essentials Operating Environment, - 5 Day, 24x7,1 year, 3 incident (Electronic)	U8301E
ProLiant Essentials Operating Environment, - 5 Day, 9x5,1 year, 10 incident	UE006E
ProLiant Essentials Operating Environment, - 5 Day, 24x7,1 year, 10 incident	UE116E
ProLiant Essentials Operating Environment, - 5 Day, 9x5,1 year, 25 incident	UE117E
ProLiant Essentials Operating Environment, - 5 Day, 24x7,1 year, 25 incident	UE118E
ProLiant Essentials Operating Environment, - 5 Day, 9x5,1 year, 50 incident	UE119E
ProLiant Essentials Operating Environment, - 5 Day, 24x7,1 year,50 incident	UE120E
ProLiant Essentials Operating Environment, - 5 Day, 9x5,1 year, unlimited SW Tech Support	UE121E
ProLiant Essentials Operating Environment, - 5 Day, 24x7,1 year, unlimited SW Tech Support	UE452E
ProLiant Essentials Operating Environment, - 5 Day, 9x5, 3 year, unlimited SW Tech Support	UE453E
ProLiant Essentials Operating Environment, - 5 Day, 24x7, 3 year, unlimited SW Tech Support	UE454E

NOTE: For more information, customer/resellers can contact <http://www.hp.com/hps/carepack/services/>

Memory

DIMM installation guidelines:

1. All DIMMs must be PC2-5300 Fully Buffered DIMMs at 667 MHz.
2. Both DIMM slots in a memory bank must be populated.
3. Banks must be populated in sequential alphabetic order, starting with bank A.
4. Both DIMMs in a memory bank must be identical. Install identical DIMMs as pairs only, starting with DIMM socket 1, bank A.
5. Multiple advanced memory protection (AMP) modes are supported, based on FBDIMM population and RBSU selection. The server blade defaults to Advanced ECC

HP ProLiant BL460c Server Blade (1P Model)

Standard Memory

1024-MB (2 x 512 MB) or 2048 MB (2 x 1024 MB) (depending on model) of PC2-5300, FBD DDR2-667 ECC DIMMs

Standard Memory Plus Optional Memory

Up to 25600 MB or 26624 MB (depending on model) of PC2-5300, FBD DDR2-667 ECC DIMMs. Memory is available with the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

Standard Memory Replaced with Optional Memory

Up to 32768-MB of PC2-5300, FBD DDR2 FBD-667 ECC DIMMs. Memory is available with removal of standard and the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

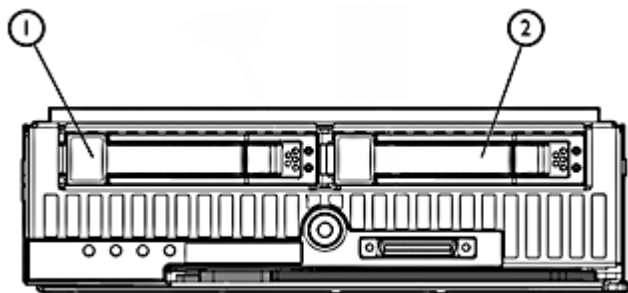
Memory		Slot							
		1A	2C	3A	4C	5B	6D	7B	8D
Standard	1024 MB	512 MB	Empty	512 MB	Empty	Empty	Empty	Empty	Empty
Standard	2048 MB	1024 MB	Empty	1024 MB	Empty	Empty	Empty	Empty	Empty
Optional	25600 MB	512 MB	4096 MB	512 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB
Optional	26624 MB	1024 MB	4096 MB	1024 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB
Maximum	32768 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB

Following are memory options available from HP:

- 1GB FBD PC2-5300 2X512MB Kit 397409-B21
- 2GB FBD PC2-5300 2X1GB Kit 397411-B21
- 4GB FBD PC2-5300 2x2GB Kit 397413-B21
- 8GB FBD PC2-5300 2x4GB Kit 397415-B21

Storage

1-2 2 x SFF SAS or SATA Hot Plug Hard Drives



Hard Drives

SAS Hard Drive

	Quantity Supported	Position Supported	Controller
36GB 10,000 rpm SAS, SP	2	1-2	HP Smart Array E200i Controller
72GB 10,000 rpm SAS, SP			
146GB 10,000 rpm SAS, SP			

Serial-ATA (SATA) Hard Drive

	Quantity Supported	Position Supported	Controller
60GB 5,400 rpm SATA	2	1-2	HP Smart Array E200i Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 1000	Please see the Modular Smart Array 1000 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs (URL below) for the latest list of supported HBAs

Modular Smart Array 1000:

http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)

HP StorageWorks 1500cs Modular Smart Array:

http://h18000.www1.hp.com/products/quickspecs/11945_div/11945_div.html (Worldwide)

HP StorageWorks 1510i Modular Smart Array:

http://h18000.www1.hp.com/products/quickspecs/12230_div/12230_div.html (Worldwide)

Storage

XP Disk Array Systems Please see the [XP External Disk Array Systems QuickSpecs](#) below to determine configuration requirements External Please see the XP Disk Array Systems Quick Specs for the latest list of supported HBAs

HP StorageWorks XP10000 Disk Array:
<http://h18006.www1.hp.com/products/storageworks/xp10000/index.html> (Worldwide)

Enterprise Virtual Array Systems Please see the [XP External Disk Array Systems QuickSpecs](#) below to determine configuration requirements External Please see the XP Disk Array Systems Quick Specs for the latest list of supported HBAs

HP StorageWorks Enterprise Virtual Array Family
http://h18006.www1.hp.com/products/quickspecs/12408_div/12408_div.html (Worldwide)

Tape Drives, Tape Autoloaders, & Tape Libraries

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following: <http://h18000.www1.hp.com/products/quickspecs/Division/10233.html> (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders & Tape Libraries listed below, please see the following: <http://h18000.www1.hp.com/products/quickspecs/Division/10809.html> (Worldwide)

NOTE: For complete listing of tape drive offerings see <http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

For recommended tape drive offerings for this ProLiant server see the following:

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP StorageWorks Tape Libraries, External MSL2024 (Ultrium 448 and 960-based) MSL4048 (Ultrium 448 and 960-based) MSL6000 (Ultrium 960 and 460-based) MSL6000 (SDLT 600-based)	External	Please consult the EBS connectivity matrix at http://www.hp.com/go/ebs for detailed connectivity information.	N/A

Storage

HP StorageWorks Virtual Library Systems

300 VLS
1002i VLS
6105 VLS
6109 VLS
6515 VLS
6840 VLS
6870 VLS

External

Please consult the EBS connectivity matrix at <http://www.hp.com/go/ebs> for detailed connectivity information.

N/A

Power Specifications

- To review maximum system power ratings for facilities planning purposes use the Active Answers Blade Power Sizer which is available via the online tool located at URL: <http://h71019.www7.hp.com/ActiveAnswers/cache/347628-0-0-0-121.html>

Technical Specifications

HP ProLiant BL460c Server Blade	Dimensions	Height	2.207in (5.61cm)
		Depth	20.058in (50.95cm)
		Width	7.154 in (18.17cm)
	Weight	Maximum	14.20 lb (6.44kg)
		Temperature Range*	Operating
	Non-Operating		-40°C to 60°C (-40°F to 140°F)
	Storage		-20°C to 60°C (-4 to 140°C)
	Maximum Wet Bulb Temperature		-30°C (86°F)
	Operating		10% to 90%
	Relative Humidity**	Shipping	10% to 90%
		Storage	10% to 95%

*NOTE: All temperature ratings shown are for sea level. An altitude derating of 1°C per 304.8 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Upper operating limit is 3,048m (10,000 ft) or 70 Kpa/10.1 psia. Upper non-operating limit is 9,144 m (30,000 ft) or 30.3 KPa/4.4 psia.

**NOTE: Storage maximum humidity of 95% is based on a maximum temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

HP Smart Array E200i Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI)
		1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR-1/266 MHz provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x4 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 64MB or 128MB cache: ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical volumes
	Maximum Logical Drive Capacity	144GB (2 x 72GB)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 5 (Distributed Data Guarding) requires 128MB BBWC option
		RAID 1, 1+0 (Striping & Mirroring)
		RAID 0 (Striping)
Upgradeable Firmware	Upgradeable Firmware	

Technical Specifications

HP Dual NC326m Multifunction Gigabit NICs	Network Interface	1000Base-T	
	Compatibility	IEEE 802.3ab 1000Base-T	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate (Theoretical Maximum Values)	1000Base-TX (Full-Duplex) 2000 Mb/s	
	Connector	RJ-45	(via Interconnect switch or pass thru module)
	Cable Support	1000 Base-TX	Category 5 UTP up to 328 ft (100 m) (via Interconnect switch or pass thru module)

HP Dual NC373m Multifunction Gigabit NICs	Network Interface	1000Base-T	
	Compatibility	IEEE 802.3ab 1000Base-T	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate (Theoretical Maximum Values)	1000Base-TX (Full-Duplex) 2000 Mb/s	
	Connector	RJ-45	(via Interconnect switch or pass thru module)
	Cable Support	1000 Base-TX	Category 5 UTP up to 328 ft (100 m) (via Interconnect switch or pass thru module)

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.