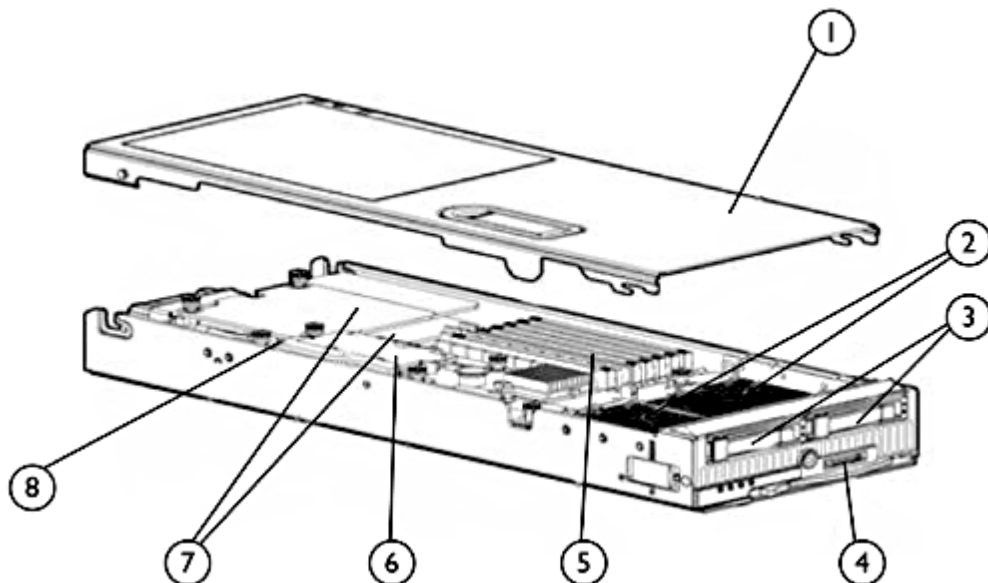


Overview



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 dual- and quad-core processing power, and now features support for a lower voltage (50W) Intel® Xeon® quad-core processors with a 1066 MHz Front Side Bus:

- Low voltage (50W) Quad-Core Intel Xeon processor L5320 (1.86 GHz, 1066 MHz FSB, 2x4MB Level 2 cache memory)

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:

- **Processor:**
 - Up to two Quad-Core Intel® Xeon® 5300 sequence processors

Overview

- Up to two Dual-Core Intel® Xeon® processors 5100 or 5000 sequence
- Supports up to 2.66 GHz 1333 or 1066 MHz FSB-2x4 MB Level 2 cache memory, 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) embedded NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI and RDMA through optional ProLiant Essentials Licensing Kits
 - 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
NOTE: The NC325m must be installed in mezzanine slot 2 of a half-height server blade to provide connectivity on all four ports. If installed in mezzanine slot 1 of a half-height server blade, the NC325m will provide connectivity on 2 of the 4 ports.
 - 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	<p>Quad-Core Processor Option Kits</p> <p>Quad-core Intel Xeon Processor X5355 (2.66 GHz, 1333 FSB) Quad-core Intel Xeon Processor E5345 (2.33 GHz, 1333 FSB) Quad-core Intel Xeon Processor E5335 (2.00 GHz, 1333 FSB)* Quad -core Intel Xeon Processor E5320 (1.86 GHz, 1066 FSB) Quad -core Intel Xeon Processor E5310 (1.60 GHz, 1066 FSB) Quad-core Intel Xeon Processor L5320 (1.86 GHz, 1066 FSB)</p> <p>Dual-Core Processor Option Kits</p> <p>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)*</p> <p>NOTE: Intel 5300, 5100, and 5000 Series processors are 64-bit and support Intel VT. Intel. 5100 and 5000 Series processors are dual-core; Intel 5300 Series processors are quad-core. Intel 5000 Series processors also support Hyper Threading. NOTE: For the Intel 5300 series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage *NOTE: Offered through Configure-To-Order only. See Factory Integrated Models section for more details.</p>						
Upgradeability	Upgradeable to 2 processors						
Cache Memory	<p>2x2MB Level 2 cache memory (5000 Sequence) 1x4MB Level 2 cache memory (5100 Sequence) 2x4MB Level 2 cache memory (5300 Sequence)</p>						
Chipset	Intel® 5000P Chipset						
Memory	<table border="0"> <tr> <td style="padding-right: 20px;">Type</td> <td>PC2-5300 Fully Buffered DIMMs at 667 MHz</td> </tr> <tr> <td>Standard</td> <td>1 GB (2 x 512 MB) 2 GB (2 x 1 GB)</td> </tr> <tr> <td>Maximum</td> <td>32 GB (8 x 4 GB) NOTE: Memory must be installed in pairs.</td> </tr> </table>	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.
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Standard Features (Server Blade)

Network Adapter Two (2) embedded NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine including support for Accelerated iSCSI and RDMA through optional ProLiant Essentials Licensing Kits
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)

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)	240GB SATA	2 x 120GB Serial ATA

Graphics Integrated ATI RN-50 1600x1280x64K 16M color (32 MB DDR1 memory)

Graphics Resolution Supported	Resolution	Color	Depths
			1600x1280, 64K, 256, 16
			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 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.

Two option kits

Emulex LPe1105-HP 4Gb FC HBA for HP c-Class BladeSystem (403621-B21)

- 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

QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem (403619-B21)

- 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

Emulex and QLogic Fibre Channel HBAs feature:

- 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

Standard Features (Server Blade)

- Support for Microsoft® Windows® and Linux operating systems environments
-

Compatible SAN

HP ProLiant BL460c server blades are optimized for HP StorageWorks MSA, EVA and XP

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>)

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.
- 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 platforms.
- Workload Management Pack - provides easier management of complex environments, improving

Standard Features

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.

Optional Remote Management

- Insight Power Manager (IPM) - upgrades the single-server remote management capabilities of iLO Select/Advanced to include centralized reporting and policy-based management of power consumption and thermal output provided by the Insight Power Manager. IPM unifies all of this functionality within a single user interface - HP Systems Insight Manager.
- Integrated Lights-Out Select Pack - upgrades the Integrated Lights-Out processor with scripted and command line virtual media (floppy, CD/DVD, USB key), historical power reporting and enterprise security (directory services and two factor authentication).

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
SUSE Linux Enterprise Server
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>.

For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix <http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html>

Standard Features

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>

Integrated Manageability

Integrated Lights-Out 2 Standard Blade Edition (iLO 2)

- Virtual KVM based remote console
- Virtual media (single server, browser based access only)
- Remote Serial Console
- Virtual Power Button Control
- Virtual Unit ID control
- Integrated Remote Console
- Dedicated network connectivity
- Embedded system health
- Browser, command line and scripted access
- Automatic IP Configuration via DHCP/DNS/WINS
- Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH)
- OS independent hardware health status
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege
- Single sign-on from HP BladeSystem Onboard Administrator

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

Standard Features

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.

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.

Standard Features

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 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/blade-system-services>

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

Models

Quad-Core Models

<p>HP ProLiant BL460c X5355 2G (1P) 435459-B21</p>	<p>Processor(s) One of the following depending on model</p>	<p>(1) Quad-core Intel Xeon Processor X5355 (2.66 GHz, 1333 FSB) (1) Quad-core Intel Xeon Processor E5345 (2.33 GHz, 1333 FSB) (1) Quad-core Intel Xeon Processor E5320 (1.86GHz, 1066 FSB) (1) Quad-core Intel Xeon Processor E5310 (1.60 GHz, 1066 FSB) (1) Quad-core Intel Xeon Processor L5320 (1.86 GHz, 1066 FSB)</p>
<p>HP ProLiant BL460c E5345 2G (1P) 435458-B21</p>	<p>Cache Memory</p>	<p>2x4 MB Level 2 cache</p>
<p>HP ProLiant BL460c E5320 2G (1P) 435457-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 E5310 1G (1P) 435456-B21</p>	<p>Network Adapter</p>	<p>Two (2) embedded NC373i Multifunction Gigabit NICs plus one (1) additional 10/100 NIC dedicated to iLO 2 Management</p>
<p>HP ProLiant BL460c E5310 1G (1P) 435456-B21</p>	<p>Storage Controller</p>	<p>HP Smart Array E200i Controller with 64MB (optional battery-backed write cache)</p>
<p>HP ProLiant BL460c L5320 2G (1P) 443751-B21</p>	<p>Hard Drives</p>	<p>No drives included; (2) SFF SAS/SATA drive bays</p>
<p>HP ProLiant BL460c L5320 2G (1P) 443751-B21</p>	<p>Internal Storage</p>	<p>292GB SAS 240GB SATA</p>
<p>HP ProLiant BL460c L5320 2G (1P) 443751-B21</p>	<p>Optical Drive</p>	<p>None</p>
<p>HP ProLiant BL460c L5320 2G (1P) 443751-B21</p>	<p>Form Factor</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>Two (2) embedded NC373i Multifunction Gigabit NICs plus one (1) additional 10/100 NIC dedicated to iLO 2 Management</p>
<p>HP ProLiant BL460c 5140 DC 2GB (1P) 416654-B21</p>	<p>Storage Controller</p>	<p>HP Smart Array E200i Controller with 64MB (optional 128MB battery-backed write cache)</p>
<p>HP ProLiant BL460c 5110 DC 1GB (1P) 416653-B21</p>	<p>Hard Drives</p>	<p>No drives included; (2) SFF SAS/SATA drive bays</p>
<p>HP ProLiant BL460c 5110 DC 1GB (1P) 416653-B21</p>	<p>Internal Storage</p>	<p>292GB SAS 240GB SATA</p>
<p>HP ProLiant BL460c 5110 DC 1GB (1P) 416653-B21</p>	<p>Optical Drive</p>	<p>None</p>
<p>HP ProLiant BL460c 5110 DC 1GB (1P) 416653-B21</p>	<p>Form Factor</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.

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

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

Models	HP ProLiant BL460c CTO Blade (North America)	404667-B21
	Configurable Model ships with:	
	Two (2) embedded NC373i Multifunction Gigabit NICs plus one (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 X5355 (2.66 GHz, 1333 FSB) Option Kit, FIO Base	435565-L21
	NOTE: If 2 processors are desired, select one 435565-L21 and one 435565-B21.	
	Quad-Core Intel Xeon processor E5345 (2.33 GHz, 1333 FSB) Option Kit, FIO Base	435564-L21
	NOTE: If 2 processors are desired, select one 435564-L21 and one 435564-B21.	
	Quad-Core Intel Xeon processor E5335 (2.00 GHz, 1333 FSB) Option Kit, FIO Base	443753-L21
	NOTE: If 2 processors are desired, select one 443753-L21 and one 443753-B21.	
	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 L5320 (1.86 GHz, 1066 FSB) Option Kit, FIO Base	443752-L21
	NOTE: If 2 processors are desired, select one 443752-L21 and one 443752-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.	

Configuration Information - Factory Integrated Models (North America only)

	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.	
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 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

Ethernet Mezzanine Options	HP NC325m PCI Express Quad Port 1Gb 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	403619-B21
	NOTE: Supports HP c-Class BladeSystems	
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	409377-B21
HP StorageWorks SB40c Storage Blade	HP StorageWorks SB40c Storage Blade 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)	411243-B21
ProLiant Essentials Value Pack Software	ProLiant Essentials Accelerated iSCSI Pack for Embedded Multifunction Gigabit Server Adapters	
	ProLiant Essentials Accelerated iSCSI Pack, Single License	407484-B22
	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	
	ProLiant Essentials Intelligent Networking Pack Windows Edition and Linux Edition	
	ProLiant Essentials Intelligent Networking Pack - Windows Edition, Single Server License	436225-B21
	NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.	
	ProLiant Essentials Intelligent Networking Pack Linux Edition, Single Server License	436229-B21
	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	
HP ProLiant Essentials Remote Direct Memory Access(RDMA) Pack for Embedded Multifunction Gigabit Server Adapters		
HP Remote Direct Memory Access (RDMA) Embedded Multifunction Pack, 1 License	407478-B22	

Options

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

ProLiant Essentials Server Migration Pack

ProLiant Essentials Server Migration Pack, Single-Migration License 435663-B21

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

ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition

ProLiant Essentials Server Migration Pack - P2P Edition, 1 Year Unlimited Migration License - License Only, No Media 444762-B21

HP ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition. 1 Year Unlimited Migration License 412982-B21

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>.

Options

Remote Management	Integrated Lights-Out Select Pack	
	Integrated Lights-Out Select Pack, 1 server License	413119-B21
	Integrated Lights-Out Select Pack 8-server License	413122-B21
	Featuring: sophisticated remote control and security features for HP BladeSystem servers and ProLiant ML/DL servers.	
	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	
	HP (iLO) Power Management Pack	
	HP iLO Power Management Pack, No Media Single-Server License	436210-B21
	NOTE: This option kit includes 1 license for iLO Advanced and Insight Power Manager.	
	NOTE: For additional ILO Power Manager Packs please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12632_div/12632_div.HTML	
	HP Insight Power Manager (IPM)	
	HP Insight Power Manager Pack, No Media, Single-Server License	433691-B21
	NOTE: This option kit includes 1 license for Insight Power Manager.	
	NOTE: For additional Insight Power Manager Packs please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12623_div/12623_div.HTML	
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HP Insight Control Tower for Linux Edition	HP Insight Control Linux Edition - MEDIA KIT	412956-B22
	NOTE: This optional Media pack CD contains the ISO image for the HP Insight Control Linux Edition management appliance (see support servers below under "Management appliance (host) supported servers"). Servers must be acquired separately. For information on HP ProLiant Servers please visit: http://h18000.www1.hp.com/products/quickspecs/Division/11070.html	
	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/controltower (click on Download button from this page).	
	HP Insight Control Linux Edition 1.5 -No Media, -1 License	412957-B22
	NOTE: This license allows one (1) server blade to be deployed and managed via HP Insight Control Linux Edition.	
HP Insight Control Linux Edition 1.5-No Media -8 License	412958-B22	
NOTE: This license allows eight (8) server blades to be deployed and managed via HP Insight Control Linux Edition.		
HP Insight Control Linux Edition 1.5 -No Media -Flex License	412959-B22	
NOTE: For use with multiple servers (minimum of 5). This part number allows you to specify the license quantity. When ordering this part number, the quantity ordered will be the number of licenses embedded in a single activation key. A single kit containing that key is then delivered to you.		
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Options

Processors	<p>Quad-core Process Option Kits</p> <p>Quad-core Intel Xeon Processor X5355 (2.66 GHz, 1333 FSB) 435565-B21</p> <p>Quad-core Intel Xeon Processor E5345 (2.33 GHz, 1333 FSB) 435564-B21</p> <p>Quad-core Intel Xeon Processor E5335 (2.00 GHz, 1333 FSB) 443753-B21</p> <p>Quad-core Intel Xeon Processor E5320 (1.86GHz, 1066 FSB) 435563-B21</p> <p>Quad-core Intel Xeon Processor L5320 (1.86 GHz, 1066 FSB) 443752-B21</p> <p>Quad-core Intel Xeon Processor E5310 (1.60GHz, 1066 FSB) 435562-B21</p> <p>Dual-Core Process Option Kits</p> <p>Dual-Core Intel Xeon processor 5160 (3.0 GHz MV, 1333 FSB) Option Kit 416660-B21</p> <p>Dual-Core Intel Xeon processor 5150 (2.66GHz, 1333 FSB) Option Kit 416659-B21</p> <p>Dual-Core Intel Xeon processor 5148 (2.33 LV GHz, 1333 FSB) Option Kit 419736-B21</p> <p>Dual-Core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB) Option Kit 416658-B21</p> <p>Dual-Core Intel Xeon processor 5130 (2.00 GHz, 1333 FSB) Option Kit 419735-B21</p> <p>Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB) Option Kit 419734-B21</p> <p>Dual-Core Intel Xeon processor 5110 (1.6 GHz, 1066 FSB) Option Kit 416657-B21</p>
Memory	<p>1 GB FBD PC2-5300 2 x 512 MB Kit 397409-B21</p> <p>2 GB FBD PC2-5300 2 x 1 GB Kit 397411-B21</p> <p>4 GB FBD PC2-5300 2 x 2 GB Kit 397413-B21</p> <p>8 GB FBD PC2-5300 2 x 4 GB Kit 397415-B21</p> <p>NOTE: Must be installed in pairs.</p>
Hard Drives	<p>Serial Attached SCSI (SAS) SFF Hot Plug</p> <p>HP 72GB 3G SAS 15K SFF SP HDD 431935-B21</p> <p>HP 36GB 3G SAS 15K SFF SP HDD 431933-B21</p> <p>HP 146GB 3G SAS 10K SFF SP HDD 431958-B21</p> <p>HP 72GB 3G SAS 10K SFF SP HDD 375861-B21</p> <p>HP 36GB 3G SAS 10K SFF SP HDD 375859-B21</p> <p>NOTE: SAS drives have a 3 year warranty.</p> <p>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)</p> <p>SFF SATA Hot Plug</p> <p>HP 120GB 1.5G SATA 5.4K SFF HDD 431786-B21</p> <p>HP 60GB 1.5G SATA 5.4K SFF HDD 379306-B21</p> <p>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/11940_div/11940_div.HTML (Worldwide)</p>

Options

Controller Cache	128MB Battery-Backed Cache Enabler NOTE: Supports the HP Smart Array E200i Controller.	351580-B21
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HP StorageWorks Modular Smart Array 1000	HP StorageWorks Modular Smart Array 1000 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)	201723-B22
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Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 Ultrium 960 Drive Library	AG115A
HP StorageWorks MSL2024 1 Ultrium 960 4GB FC Library	AG326B
HP StorageWorks MSL2024 1 Ultrium 920 Drive Library	AH169A
HP StorageWorks MSL2024 2 Ultrium 920 Drive Library	AH170A
HP StorageWorks MSL2024 1 Ultrium 448 Drive Library	AG116A
HP StorageWorks MSL2024 2 Ultrium 448 Drive Library	AG117A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 Ultrium 448 Drive Library	AG320A
HP StorageWorks MSL4048 2 Ultrium 448 Drive Library	AG321A
HP StorageWorks MSL4048 1 Ultrium 960 Drive Library	AG322A
HP StorageWorks MSL4048 1 Ultrium 960 4GB FC Library	AG324B
HP StorageWorks MSL4048 2 Ultrium 960 Drive Library	AG323A
HP StorageWorks MSL4048 2 Ultrium 960 4GB FC Library	AG325B
HP StorageWorks MSL4048 1 Ultrium 920 Tape Library	AH171A
HP StorageWorks MSL4048 2 Ultrium 920 Tape Library	AH172A

HP StorageWorks MSL6000 Tape Library

Ultrium 960 technology

HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library	AD606B
HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library	AD608B
HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library	AD607B
HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library	AD609B

Ultrium 460 technology

HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library	AD598B
HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library	AD600B
HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library	AD601B

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>

HP StorageWorks Virtual Library Systems

HP StorageWorks 300 Virtual Library System Gateway Base Unit	AH138A
HP StorageWorks 1002i 2TB Virtual Library System	AG124A
HP StorageWorks 6105 Virtual Library System	AF728A
HP StorageWorks 6510 Virtual Library System	AF729A

Options

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
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HP 1GB Drive Key II- USB 2.0 Flash Drive	AG382AA
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HP 512MB DriveKey II- USB Flash Drive	ED516AA
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USB 2.0 4-port Hub	DG954A
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2004 Standard Keyboard USB	DT528A#xxx
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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.

Options

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

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

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

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

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

Support Plus

Options

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 hours, 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
SUSE Software Operating Environment Software Telephone 9x5 - 3 incident (Electronic)	U9615E

Options

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

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

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.

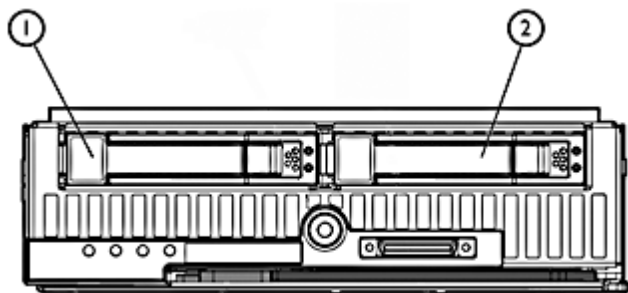
Memory		Slot							
		1A	2C	3A	4C	5B	6D	7B	8D
Standard	1024 MB	512 MB	Empty	512 MB	Empty	Empty	Empty	Empty	Empty
Standard	2048 MB	1024 MB	Empty	1024 MB	Empty	Empty	Empty	Empty	Empty
Optional	25600 MB	512 MB	4096 MB	512 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB
Optional	26624 MB	1024 MB	4096 MB	1024 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
72GB 15,000 rpm SAS, SP	2	1-2	HP Smart Array E200i Controller
36GB 15,000 rpm SAS, SP			
146GB 10,000 rpm SAS, SP			
72GB 10,000 rpm SAS, SP			
36GB 10,000 rpm SAS, SP			

Serial-ATA (SATA) Hard Drive

	Quantity Supported	Position Supported	Controller
120GB 5,400 rpm SATA	2	1-2	HP Smart Array E200i Controller
60GB 5,400 rpm SATA			

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 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 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

Embedded NC373i Multifunction Gigabit Server Adapter	Network Processor	Broadcom 5708S
	Data Transfer Method	Four lane (x4) PCI Express
	Network Transfer Rate	1000 Mb/s
	IEEE Compliance	802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x
	Standard Features	<ul style="list-style-type: none">• TCP/IP offload engine (TOE) for MS Windows• Remote direct memory access (RDMA) for MS Windows via the optional HP ProLiant Essentials RDMA Pack• Accelerated iSCSI for MS Windows via the optional HP ProLiant Essentials Accelerated iSCSI Pack• Jumbo frames• TCP/IP checksum offload (TCO)• Large send offload (LSO)• Interrupt coalescence• Dual address cycles (DAC)• Wake-on-LAN (WOL)• Pre-boot execution environment (PXE)• ProLiant Teaming including Network Fault Tolerance, Transmit Load Balancing, and Switch-Assisted Load Balancing• Advanced teaming and Virus Throttle via the optional HP ProLiant Essentials Intelligent Networking Pack

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