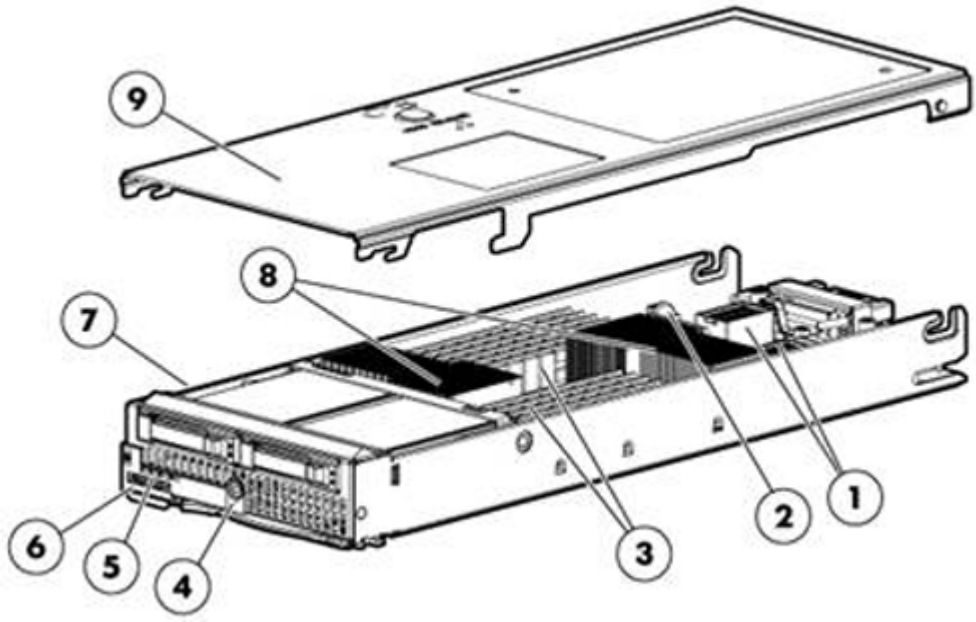
Overview



HP ProLiant BL460c G6 Server Blade

1. Two (2) mezzanine I/O expansion slots
2. Internal USB connector
3. Twelve (12) DDR3 Registered or Unbuffered DIMM Memory Slots
4. HP Smart Array P410i Controller
5. Two (2) small form factor (SFF) hot-plug drive bays
6. Local I/O Connector
7. Internal SD card slot
8. Up to two (2) Intel® Xeon® 5500 series processors
9. Access Panel

What's New

- Support for 16GB DIMMs
- Support for HP 160GB and 500GB 3G SATA Midline hard disk drives
- Support for HP 500GB 6G SAS Midline hard disk drives

At A Glance

This document covers the HP ProLiant BL460c G6 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 Enclosures QuickSpecs:
HP BladeSystem c3000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html

HP BladeSystem c7000 Enclosure QuickSpecs:

Overview

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

HP BladeSystem c-Class Interconnect Components QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12524_na/12524_na.html

The HP ProLiant BL460c G6 provides greater 2P x86 server blade density without compromise and maximum power-efficiency with flexibility and choice.

HP ProLiant BL460c G6 server blade includes:

- Processor:
  - Up to two (2) Intel® Xeon® 5500 Series processors, up to 2.93GHz
  - Intel® 5500 Chipset
- Memory:
  - Twelve (12) DIMM slots
  - Up to 192GB, using PC3-8500 DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 2 DIMMs per Channel in 12 slots
  - Up to 24GB, using PC3-10600 DDR3 Unbuffered (UDIMM) memory, operating at 1333MHz when fully populated at 2 DIMMs per Channel in 12 slots
- Storage Controller:
  - HP Smart Array P410i Controller (RAID 0/1)
- Internal Drive Support:
  - Up to two (2) small form factor (SFF) SAS or SATA hot plug hard disk drives
- Network Controller:
  - Embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter
    NOTE: Flex-10 capability requires the use of an HP Virtual Connect Flex-10 10Gb Ethernet module. Learn more at: www.hp.com/go/virtualconnect.
    NOTE: Each port is autosensing 1 Gb/10Gb, and can interoperate with 1Gb HP BladeSystem c-Class interconnect components.
  - One (1) additional 10/100 server adapter dedicated to iLO 2 Management
- Mezzanine Support:
  - Two (2) I/O expansion mezzanine slots
  - Supports up to two (2) mezzanine cards
    - Dual-Port Fibre Channel Mezzanine options for SAN connectivity (Choice of Emulex or QLogic)
    - iSCSI Ethernet mezzanine option for optimized iSCSI connectivity
    - Ethernet server adapter mezzanine options for additional network ports
    - 4X QDR (40Gbps) and DDR (20Gbps) InfiniBand (IB) Mezzanine options for low latency and high bandwidth server interconnectivity
- Ports:
  - One (1) internal USB 2.0 connector for security key devices and USB drive keys
  - One (1) internal SD-HC Card slot
- Security - Trusted Platform Module:
  - One (1) internal TPM 1.2 module connector
- Form Factor:
  - HP ProLiant BL460c G6 is a half-height server blade that plugs into the HP BladeSystem c3000 and c7000 enclosures
- Infrastructure Management:
  - Convenient slide-out Systems Insight Display for quick and easy front view server diagnostics, along with status LEDs, Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU)
  - HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration.
  - HP Insight Control suites deliver essential infrastructure management that can help save time and money by making it easy to deploy, monitor, control and optimize your IT infrastructure through a single, simple management console.

Insight Control suites support both Windows and Linux-based servers and management consoles
  - HP Insight Dynamics - VSE suite for ProLiant servers, a product option, is an integrated command center that enables you to continuously analyze and optimize your adaptive infrastructure. This advanced infrastructure management software lets you reduce the cost of common data center tasks by as much as 40 percent while keeping pace with your changing business.
- Operating Systems and Virtualization Software:
  - Supports Windows, RHEL, SLES, OEL, Solaris, NetWare, VMware, and Citrix XenServer
- Enclosures:
  - HP offers three different c-Class server blade enclosures to meet your individual needs:
    - The HP BladeSystem c7000 rack enclosure is 10U high and holds up to sixteen (16) ProLiant BL460c G6 servers plugged vertically.
    - The HP BladeSystem c3000 rack enclosure is 6U high and holds up to eight (8) HP ProLiant BL460c G6 servers plugged horizontally.
    - The HP BladeSystem c3000 tower enclosure is designed with casters for sites without racks and holds up to eight (8) HP ProLiant BL460c G6 servers plugged vertically.
  - Server blades, storage blades, interconnect modules, power supplies, fans, and redundant Onboard Administrator modules are all designed to fit into the c3000 and c7000 enclosures.
- For additional enclosure information, please see: http://h18004.www1.hp.com/products/blades/components/enclosures/c-class/index.html.
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Certain restrictions and exclusions apply. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details

    NOTE: Server warranty includes 3 year Parts, 3 year Labor, 3-year on-site support. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

Processor	Quad-Core Processors Intel® Xeon® Processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800) Dual-Core Processors Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800) NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology. NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5500 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.
Upgradeability	Upgradeable to two (2) processors
Cache Memory	4MB shared L3 cache 8MB shared L3 cache
Chipset	Intel® 5500 Chipset

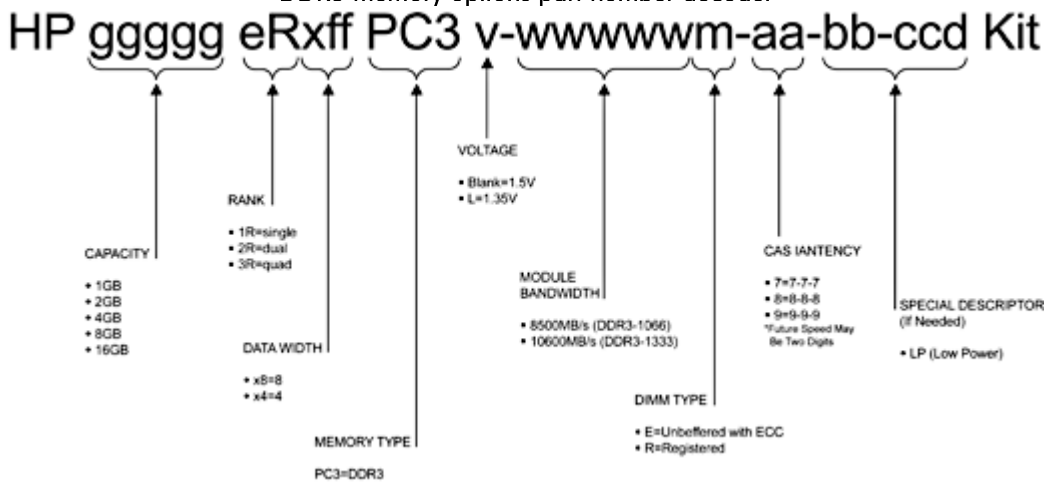
Standard Features

Memory

Type	DDR3 Registered (RDIMM) or Unbuffered (UDIMM)
Standard	6 GB (3 x 2GB) RDIMM
Maximum(RDIMM)	192GB (12 x 16 GB) for Registered Memory configurations
Maximum (UDIMM)	24 GB (12 x 2 GB) for Unbuffered Memory configurations

NOTE: Depending on the memory configuration and processor model the memory speed may run at 1333MHz, 1066MHz or 800MHz. Please see the Online Memory Configuration Tool for details: www.hp.com/go/ddr3memory-configurator

DDR3 memory options part number decoder



Network Controller

Embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter
NOTE: Flex-10 capability requires the use of an HP Virtual Connect Flex-10 10Gb Ethernet module. Learn more at: www.hp.com/go/virtualconnect.
One (1) additional 10/100 NIC dedicated to iLO 2 Management

I/O Expansion Slots

Two (2) I/O expansion mezzanine slots (x8 PCI Express)

Integrated Manageability

ProLiant Onboard Administrator (powered by the Integrated Lights-Out 2 management processor)

Storage Controller

Type HP Smart Array P410i Controller (RAID 0/1)
Available Options: 256MB cache, Battery-Backed Write Cache (BBWC) module for 256MB cache, 512MB cache with Battery Backed Write Cache (BBWC), and Smart Array Advanced Pack.
NOTE: 3Gb (6Gb Capable) SAS / 1.5Gb (3Gb Capable) SATA.
NOTE: Supports two (2) Small Form Factor (SFF) Hot Plug drive bays.

Maximum Internal Storage

Hot Plug SAS	1TB	2 x 500GB Serial SCSI
Hot Plug SATA	1TB	2 x 500GB Serial ATA

Standard Features

Graphics	Integrated ATI RN-50, 32 MB video memory	
Graphics Resolution Supported	Resolution Color Depths	1600 x 1200, 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 NOTE: Maximum resolution available via ProLiant Onboard Administrator remote console is 1280 x 1024.

Fibre Channel Support

Two (2) optional Fibre Channel HBAs are supported by the HP ProLiant BL460c G6. 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.

HBA mezzanine card option kits:

Emulex LPe1105-HP 4Gb FC HBA (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

Emulex LPe 1205-HP 8Gb FC HBA (456972-B21)

- Exceptional performance, enhanced security, and scalable management for virtual server and enterprise-class applications

QLogic QMH2462 4Gb FC HBA (403619-B21)

- Uses common drivers which means that customers can standardize on one QLogic driver whether they are using the QMH2462 or other HBAs powered by QLogic

QLogic QMH2562 8Gb FC HBA (451871-B21)

- Provides a first step into the 8Gb future, advanced, embedded support for virtualized environments and reduced power consumption

Emulex and QLogic Fibre Channel HBAs for HP BladeSystem c-Class feature:

- Optimal performance utilizing PCI Express
- 4/2/1Gb/s auto negotiating speeds (4Gb HBAs)
- 8/4/2Gb/s auto negotiation speeds (8Gb HBAs)
- 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 system environments

Standard Features

Compatible SAN		HP ProLiant BL460c G6 server blades are optimized for HP StorageWorks MSA, EVA and XP. HP ProLiant 460c G6 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
Core Infrastructure Management	HP Insight Foundation	Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters. HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: http://www.hp.com/go/foundation. The foundation pack includes: • HP SmartStart • HP Management • HP ProLiant Firmware Maintenance SmartStart version supported (minimum): SmartStart 8.20. http://www.hp.com/servers/smartstart
	ProLiant Onboard Administrator	HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and the Insight Dynamics-VSE suite helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. See www.hp.com/go/onboardadministrator
	HP Insight Control suites	HP Insight Control suites deliver essential infrastructure management that can help save time and money by making it easy to deploy, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. Insight Control installs and licenses software modules that are integrated into HP System Insight Manager. Two Insight Control suites are available for environments requiring either a Windows or a Linux-based management console: HP Insight Control suites include one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
	HP Insight Dynamics - VSE suite	The HP Insight Dynamics - VSE suite for ProLiant, a product option, is an integrated command center that enables you to continuously analyze and optimize your adaptive infrastructure. This advanced infrastructure management software that allows you to analyze and optimize your adaptive infrastructure to manage physical and virtual resources in the same way. HP Insight Dynamics - VSE gives you a powerful toolkit to accelerate complex

technology projects and simplify daily operations. It enables you to plan capacity and power continuously, balance across physical and virtual resources, ensure cost-effective high availability, and provision infrastructure consistently.

HP Insight Orchestration, an optional extension to Insight Dynamics - VSE, enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements.

HP Insight Recovery, also an optional extension for Insight Dynamics - VSE, enables cost-effective disaster recovery for physical and virtual environments. Application environments can be reactivated in minutes with the touch of a button to a remote location.

NOTE: For more information, visit: http://www.hp.com/go/insightdynamics, http://www.hp.com/go/insightorchestration, http://www.hp.com/go/insightrecovery

Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server
Microsoft Windows Server Hyper-V
Red Hat Enterprise Linux (RHEL)
SUSE Linux Enterprise Server (SLES)
Oracle Enterprise Linux (OEL)
Solaris 10 for x86/x64 based Systems
VMware
Citrix XenServer

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/ossupport and our driver download page http://www.hp.com/support/BL460cG6

Availability

- Dual-Port Fibre Channel Mezzanine Card options for redundant SAN connection
- Dual-port embedded 10 Gigabit Ethernet adapters for redundant LAN connections
- Two (2) hot-plug SAS/SATA hard drive bays and integrated RAID (HP Smart Array P410i Controller)
- Optional Battery-backed write cache module for integrated RAID controller
- Redundant ROM
- Advanced ECC Memory
- Support for Memory Mirroring and Memory Lock-Step Mode
- Network adapter teaming (network fault tolerance, transmit load balancing, switch-assisted load balancing)

Standard Features

Industry Standard Compliance	ACPI 2.0 Compliant PCI 2.2 Compliant WOL Support Microsoft® Logo certifications USB 2.0 Support
Security	• 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
Security - Trusted Platform Module	The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. NOTE: For more information about TPM, including a white paper, go to http://www.hp.com/go/TPM NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment. NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.
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 MSAxxxx, 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 e-Configure 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

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

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

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

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

- Support Service - 4-Hour Response Coverage, 3-Year, 24 x 7, Same Business Day
- Deployment Service - Installation and Start Up for HP BladeSystem Infrastructure

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

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

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

For a complete listing of service offerings and information visit:
http://www.hp.com/services/bladesystemservices
http://www.hp.com/go/proliant/carepack

Models

HP BL460c G6 X5550 6GB (1P) 507778-B21	Processor(s) One of the following depending on model	(1) Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) (1) Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) (1) Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) (1) Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) (1) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) (1) Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) (1) Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800)
HP BL460c G6 E5540 6GB (1P) 507779-B21		
HP BL460c G6 E5530 6GB (1P) 507780-B21		
HP BL460c G6 E5520 6GB (1P) 507782-B21		
HP BL460c G6 E5506 6GB (1P) 507783-B21		
HP BL460c G6 E5502 6GB (1P) 507784-B21		
HP BL460c G6 L5520 6GB (1P) 507781-B21		
	Cache Memory	4MB or 8MB shared L3 cache
	Memory	6 GB (3 x 2 GB) PC3-10600 (DDR3-1333) Registered DIMMs
	Network Adapter	Embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter and one (1) additional 10/100 server adapter dedicated to iLO 2 management
	Storage Controller	HP Smart Array P410i Controller (RAID 0/1)
	Hard Drives	None ship standard
	Internal Storage	SAS: 1TB (2 x 500GB SAS) SATA: 1TB (2 x 500GB SATA)
	Optical Drive	None
	Form Factor	Up to eight (8) half-height blades supported in the HP BladeSystem c3000 Enclosure Up to sixteen (16) half-height blades supported in HP BladeSystem c7000 Enclosure

Smart Buys

The ProLiant Smart Buy program offers a collection of promotional server and option products that are configured with SMB in mind, offered at discounted prices, and positioned for quick delivery. Smart Buy server offers are available for a limited time only.

HP S-Buy BL460c G6 E5530 4GB 532020-B21	Processor(s)	(1) Intel® Xeon® Processor E5530 (2.40 GHz, 80W, DDR3-1066)
	Cache Memory	8MB Level 3 Cache
	Memory	4GB (2 x 2 GB) PC3-10600 RDIMMs
	Network Controller	Embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter and (1) additional 10/100 server adapter dedicated to iLO 2 management
	Storage Controller	HP Smart Array P410i Controller (RAID 0/1)
	Hard Drive	Not Included, supports up to (2) small form factor (SFF) SAS or SATA hot plug hard disk drives
	Internal Storage	600GB (2 x 300GB) SAS, Maximum 500GB (2 x 250GB) SATA, Maximum
	Form Factor	Half-Height server blade

HP S-Buy BL460c G6 E5540 8GB 532019-B21	Processor(s)	(2) Intel® Xeon® Processor E5540 (2.53 GHz, 80W, DDR3-1066)
	Cache Memory	8MB Level 3 Cache
	Memory	8GB (2 x 4GB) PC3-10600 RDIMMs
	Network Controller	Embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter and (1) additional 10/100 server adapter dedicated to iLO 2 management
	Storage Controller	HP Smart Array P410i/512MB BBWC Controller (RAID 0/1)
	Hard Drive	Not Included, supports up to (2) small form factor (SFF) SAS or SATA hot plug hard disk drives
	Internal Storage	600GB (2 x 300GB) SAS, Maximum 500GB (2 x 250GB) SATA, Maximum
	Form Factor	Half-Height server blade

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above.
Configure-to-order server blades must start with a CTO Blade.
NOTE: FIO indicates that this option is a Factory Installable Option.

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

Models	HP ProLiant BL460c G6 CTO Blade	507864-B21
	Configurable Model ships with:	
	Embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter and one (1) additional 10/100 server adapter dedicated to iLO 2 management	
	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 Processor Option Kits	
	Intel® Xeon® Processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507791-L21 and one 507791-B21.	507791-L21
	Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507792-L21 and one 507792-B21.	507792-L21
	Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507793-L21 and one 507793-B21.	507793-L21
	Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507794-L21 and one 507794-B21.	507794-L21
	Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507797-L21 and one 507797-B21.	507797-L21
	Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507798-L21 and one 507798-B21.	507798-L21
	Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507799-L21 and one 507799-B21.	507799-L21
	Intel® Xeon® processor HP L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 513859-L21 and one 513859-B21.	513859-L21
	Intel® Xeon® processor HP E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507800-L21 and one 507800-B21.	507800-L21

	Intel® Xeon® processor HP E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507801-L21 and one 507801-B21.	507801-L21
	Dual-Core Processor Option Kits	
	Intel® Xeon® processor HP E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800) BL460c G6 Kit, FIO NOTE: If two processors are desired, select one 507802-L21 and one 507802-B21.	507802-L21
Memory	Registered DIMMS (RDIMMs)	
	HP 2GB 2Rx8 PC3-10600R -9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.	

Step 3: Choose Additional Factory Integratable Options (one of the following from each list unless otherwise noted)

Storage Controller	256 MB Cache Module	462968-B21
	Battery Kit Upgrade (for BBWC) NOTE: Requires 256 MB Cache Module. NOTE: This kit includes the cable required to attach battery to cache.	462969-B21
	512 MB BBWC Cache Module NOTE: This kit includes the cable required to attach battery to cache.	462967-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" section below. For additional options, including server blade enclosures interconnect options and power subsystem options; please see the Core Options and Additional sections below; or the following QuickSpecs:
HP BladeSystem c-Class Enclosures QuickSpecs:
HP BladeSystem c3000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html
HP BladeSystem c7000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html
and HP BladeSystem c-Class Interconnect Components QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12524_na/12524_na.html.

Core Options

Ethernet Mezzanine Options	Gigabit Ethernet Mezzanines	
	HP NC325m PCI Express Quad Port 1Gb Server Adapter for c-Class BladeSystem NOTE: If the NC325m is installed in mezzanine slot 1 of a half-height server, connectivity will be provided on 2 of the 4 ports.	416585-B21
	HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem	406771-B21
	HP NC360m Dual Port 1GbE BL-c Adapter	445978-B21
	HP NC364m Quad Port 1GbE BL-c Adapter NOTE: If the NC364m is installed in mezzanine slot 1 of a half-height server, connectivity will be provided on only 2 of the 4 ports.	447883-B21
	HP NC382m Dual Port 1GbE Multifunction BL-c Adapter	453246-B21
	QLogic QMH4062 1Gb E iSCSI Adapter for HP BladeSystem c-Class	488074-B21
	NOTE: The Gigabit Ethernet adapters above transmit from the server at 2000 Mbps, full duplex per port only. For more information, see the "Network Controller" segment in the Standards Features section.	
	10 Gigabit Ethernet Mezzanines	
	HP NC512m Dual Port 10GbE Multifunction BL-c Adapter NOTE: The NC512m is supported in type II x8 PCI Express mezzanine slots; maximum two adapters per server. For more information, see the Mezzanine Slot Compatibility matrix within the HP NC512m Dual Port 10GbE Multifunction BL-c Adapter QuickSpecs: http://h18004.www1.hp.com/products/servers/networking/nc512m/index.html. NOTE: A minimum of 2 GB of server memory is required per NC512m and supports a maximum of 32 GB for Windows and 64 GB for Linux. NOTE: The NC512m adapter transmits from the server only at 20 Gbps, full duplex per port.	440910-B21
	HP NC522m Dual Port 10GbE Multifunction BL-c Adapter NOTE: The NC522m network adapter card is required for each server blade connecting to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 3-4 (HP BladeSystem c3000 Enclosure). NOTE: The NC522m requires a minimum of 2 GB of server memory. NOTE: The NC522m supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 enabled module and will link with all current 1Gb switches at 1Gb.	467801-B21
	HP NC532m Dual Port 10GbE BL-c Adapter NOTE: The NC532m network adapter card is required for each server blade connecting to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 3-4 (HP BladeSystem c3000 Enclosure). NOTE: The NC532m requires a minimum of 2 GB of server memory. NOTE: The NC532m supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 enabled module and will link with all current 1Gb switches at 1Gb.	467799-B21

Core Options

Fiber Channel Mezzanine Options	HP BLc Emulex LPe1205- 8Gb FC HBA for HP c-Class BladeSystem	456972-B21
	Emulex LPe1105 FC Dual Channel 4Gb, PCI-E-to-Fibre Channel Host Bus Adapter	403621-B21
	QLogic QMH2562 8Gb FC HBA for HP c-Class BladeSystem	451871-B21
	QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21
Processors	Quad-Core Process Option Kits	
	Intel® Xeon® Processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) BL460c G6 Kit	507791-B21
	Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) BL460c G6 Kit	507792- B21
	Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) BL460c G6 Kit	507793- B21
	Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit	507794- B21
	Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit	507797-B21
	Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit	507798-B21
	Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) BL460c G6 Kit	507799-B21
	Intel® Xeon® processor HP L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800) BL460c G6 Kit	513859-B21
	Intel® Xeon® processor HP E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) BL460c G6 Kit	507800-B21
	Intel® Xeon® processor HP E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) BL460c G6 Kit	507801-B21
	Dual-Core Process Option Kits	
	Intel® Xeon® processor HP E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800) BL460c G6 Kit	507802-B21

Core Options

Memory	Registered DIMMS (RDIMMs)	
	HP 2GB 2Rx8 PC3-10600R -9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.	
	NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/	

Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	
	SAS Hot Plug SFF Enterprise (ENT) Drives	
	HP 300GB 6G SAS 10K SFF DP ENT HDD	507127-B21
	HP 300GB 3G SAS 10K SFF DP HDD	492620-B21
	HP 146GB 6G SAS 15K SFF DP ENT HDD	512547-B21
	HP 146GB 3G SAS 15K SFF DP ENT HDD	504062-B21
	HP 146GB 6G SAS 10K SFF DP ENT HDD	507125-B21
	HP 146GB 3G SAS 10K SFF DP HDD	418367-B21
	HP 72GB 6G SAS 15K SFF DP ENT HDD	512545-B21
	HP 146GB 3G SAS 15K SFF DP ENT HDD	504062-B21
	HP 72GB 3G SAS 15K SFF DP HDD	418371-B21
	HP 72GB 3G SAS 10K SFF DP HDD	384842-B21
	HP 36GB 3G SAS 15K SFF DP HDD	418369-B21
	SAS Hot Plug SFF Midline (MDL) Drives	
	HP 500GB 6G SAS 7.2K SFF DP MDL HDD	507610-B21
	NOTE: SAS Enterprise drives have a 3 year warranty and SAS Midline drives have a one-year warranty.	
	NOTE: Please see QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html	
	NOTE: The hard drive options are not required when configuring a Drive-less Model.	
	SATA Hot Plug SFF Midline (MDL) Drives	
	HP 500GB 3G SATA 7.2K 2.5in MDL HDD	507750-B21

Core Options

HP 160GB 3G SATA 7.2K 2.5in MDL HDD	530888-B21
SATA SFF Hot Plug Entry (ETY) Drives	
HP 250GB 3G SATA 5.4K SFF ETY HDD	460355-B21
HP 120GB 1.5G SATA 5.4K SFF ETY HDD	458924-B21

NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html

Additional Options

HP Insight Control suites	NOTE: Electronic licensing options are available for Insight Control suites software products. Please see the appropriate Insight Control QuickSpecs for additional information.	
	HP Insight Control suite	
	HP Insight Control suite, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	452148-B22
	HP Insight Software Media Kit NOTE: Insight Software DVD media without licenses. Contains Insight Software suites, standalone software products and components licensed by Insight Control Environment suites. Uses an integrated installer to perform quick and accurate software installation and updates.	436222-B21
	NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html	
	HP Insight Control suite for Linux	
	HP Insight Control suite for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates NOTE: This part number can be used to purchase one (1) license with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: One certificate is shipped for each license.	464423-B22
	HP Insight Control suite for Linux, Media pack (DVD) - No licenses included NOTE: This optional Media pack DVD contains the ISO image for HP Insight Control suite for Linux, HP System Insight Manager, HP Insight Power Manager software, HP Virtual Machine Manager software for ProLiant, and an integrated installer. Servers must be acquired separately. NOTE: This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from: http://www.hp.com/go/ice-linux (click on Download button).	464422-B22
	NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html	
Security	HP Trusted Platform Module (TPM) Kit NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.	488069-B21

Additional Options

Storage Controller	HP Smart Array P700M/512 Controller	508226-B21
	HP Smart Array P700M/256 Controller	507925-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13175_na/13175_na.html	
	Optional Upgrades	
	256 MB Cache Module	462968-B21
	Battery Kit Upgrade (for BBWC)	462969-B21
	NOTE: Requires 256 MB Cache Module.	
	NOTE: This kit includes the cable required to attach battery to cache.	
	512 MB BBWC Cache Module	462967-B21
	NOTE: This kit includes the cable required to attach battery to cache.	
	HP Smart Array Advanced Pack (SAAP)	516471-B21
	NOTE: A license key, a minimum of 256MB cache, and battery kit is required to enable Smart Array Advanced Pack features. For more information go to: http://www.hp.com/go/saap	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13203_na/13203_na.html	
I/O Accelerator Mezzanine Options	HP StorageWorks 80GB IO Accelerator for BladeSystem c-Class	AJ876A
	HP StorageWorks 160GB IO Accelerator for BladeSystem c-Class	AJ877A
	HP StorageWorks 320GB IO Accelerator for BladeSystem c-Class	AJ878A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13175_na/13175_na.html	
HP InfiniBand Mezzanine Options	HP 4X QDR IB Dual Port Mezzanine HCA for HP BladeSystem c-Class	492303-B21
	NOTE: This mezzanine card is only supported in mezzanine slot 1 on the BL460c G6.	
	HP 4X DDR IB Dual Port Mezzanine HCA for HP BladeSystem c-Class	448262-B21
	HP 4X DDR IB Mezzanine HCA for HP BladeSystem c-Class	410533-B21
HP Ultrium Tape Blades	HP StorageWorks SB1760c Tape Blade	AQ697A
	NOTE: LTO-4 Ultrium tape technology.	
	HP StorageWorks SB920c Tape Blade	AJ401A
	NOTE: LTO-3 Ultrium technology.	
	HP StorageWorks Ultrium 448c Tape Blade	440947-B21
	NOTE: LTO-2 Ultrium technology.	
	NOTE: The HP PCI Express Mezzanine Pass-Thru Card for HP BladeSystem (431643-B21) is required when installing a tape blade adjacent to a full-height server blade.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12729_na/12729_na.html	

Additional Options

HP StorageWorks SB40c Storage Blade	HP StorageWorks SB40c Storage Blade NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12587_na/12587_na.html	411243-B21
HP PCI Expansion Blade	HP PCI Expansion Blade NOTE: Ships with one pre-installed PCI-X connect board. Also includes one PCIe connect board which requires installation. NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12753_na/12753_na.html	448018-B21
USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
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	UK065E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UK066E
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UK067E

Memory

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

Memory Population Guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below:

- For the HP ProLiant BL460c G6 server with twelve (12) memory slots:
  - There are three (3) channels per processor; six (6) channels per server
  - There are two (2) DIMM slots for each memory channel; twelve (12) total slots.
  - Memory channel 1 consists of the two (2) DIMMs that are closest to the processor
  - Memory channel 3 consists of the two (2) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs).
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- You can only have up to eight (8) ranks installed per channel
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,4; 2,5; on a 2DPC system
- No mixing DIMM voltage; all DIMMs must be the same voltage

DIMM slot/capacity/populated speed table								
DIMM Type	Registered DIMMS (RDIMMs)						Unbuffered with ECC DIMMs (UDIMMs)	
DIMM Rank	Dual Rank (2R)				Quad Rank (4R)		Single Rank (1R)	Dual Rank (2R)
DIMM Capacity	2GB	4GB	8GB	8GB	4GB	16GB	1GB	2GB
DIMM Native Speed (MHz)	1333	1333	1066	1333	1066	1066	1333	1333
SLOTS THAT CAN BE POPULATED								
12 slot servers	12	12	12	12	12	12	12	12
MAXIMUM CAPACITY (GB)								
	24	48	96	48	48	192	12	24
POPULATED DIMM SPEED (MHz)								
1 DIMM Per Channel	1333	1333	1066	1333	1066	1066	1333	1333
2 DIMM Per Channel	1066*	1066*	1066	1066*	800	800	1066*	1066*
3 DIMM Per Channel	800	800	800	800	not supported	not supported	not supported	not supported
*Supported at 1333 via setting in ROM based setup utility (RBSU).								

NOTES:

Memory

- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, you still run at 1066MHz
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz
- 95 Watt CPU's are required for 1333MHz DIMM speeds
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

HP ProLiant BL460c G6 Server Blade DIMM slot and configuration diagrams

Basic memory slot and population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

12 DIMM SLOTS (6 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D	1	D	Chnl 1
	2	A	2	A	
Chnl 2	3	E	3	E	Chnl 2
	4	B	4	B	
Chnl 3	5	F	5	F	Chnl 3
	6	C	6	C	

HP ProLiant BL460c G6 Server Blade (1P Model)

Standard memory configuration (1 CPU model)

- 6GB (3 x 2GB) of PC3-10600 (DDR3-1333) RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: empty	1	D: empty	Chnl 1
	2	A: 2GB DIMM	2	A: empty	
Chnl 2	3	E: empty	3	E: empty	Chnl 2
	4	B: 2GB DIMM	4	B: empty	
Chnl 3	5	F: empty	5	F: empty	Chnl 3
	6	C: 2GB DIMM	6	C: empty	

Standard Memory Plus Optional Memory (1 CPU model)

- 30 GB of PC3-10600 (DDR3-1333) RDIMMs (3 x 2GB plus 3 x 8GB)

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 2GB DIMM	1	D: empty	Chnl 1
	2	A: 8GB DIMM	2	A: empty	
Chnl 2	3	E: 2GB DIMM	3	E: empty	Chnl 2
	4	B: 8GB DIMM	4	B: empty	
Chnl 3	5	F: 2GB DIMM	5	F: empty	Chnl 3
	6	C: 8GB DIMM	6	C: empty	

Standard Memory Replaced with Optional Memory (1 CPU model)

- 96GB of PC3-8500 Quad-Rank RDIMMs (6 x 16GB)

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 16GB DIMM	1	D: empty	Chnl 1
	2	A: 16GB DIMM	2	A: empty	
Chnl 2	3	E: 16GB DIMM	3	E: empty	Chnl 2
	4	B: 8GB DIMM	4	B: empty	
Chnl 3	5	F: 16GB DIMM	5	F: empty	Chnl 3
	6	C: 16GB DIMM	6	C: empty	

UDIMM maximum configuration (1 CPU model)

- 12GB, consisting of six (6) 2GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 2GB DIMM	1	D: empty	Chnl 1
	2	A: 2GB DIMM	2	A: empty	
Chnl 2	3	E: 2GB DIMM	3	E: empty	Chnl 2
	4	B: 2GB DIMM	4	B: empty	
Chnl 3	5	F: 2GB DIMM	5	F: empty	Chnl 3
	6	C: 2GB DIMM	6	C: empty	

Standard Memory Replaced with Optional Memory (2 CPU Model)
RDIMM maximum configuration

- 192GB, consisting of twelve (12) 16GB quad-rank PC3-8500 RDIMMs

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 16GB DIMM	1	D: 16GB DIMM	Chnl 1
	2	A: 16GB DIMM	2	A: 16GB DIMM	
Chnl 2	3	E: 16GB DIMM	3	E: 16GB DIMM	Chnl 2
	4	B: 16GB DIMM	4	B: 16GB DIMM	
Chnl 3	5	F: 16GB DIMM	5	F: 16GB DIMM	Chnl 3
	6	C: 16GB DIMM	6	C: 16GB DIMM	

UDIMM maximum configuration (2 CPU model)

- 24GB, consisting of twelve (12) 2GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 2GB DIMM	1	D: 2GB DIMM	Chnl 1
	2	A: 2GB DIMM	2	A: 2GB DIMM	
Chnl 2	3	E: 2GB DIMM	3	E: 2GB DIMM	Chnl 2
	4	B: 2GB DIMM	4	B: 2GB DIMM	
Chnl 3	5	F: 2GB DIMM	5	F: 2GB DIMM	Chnl 3
	6	C: 2GB DIMM	6	C: 2GB DIMM	

NOTE: Capacity references are rounded to the common Gigabyte values.

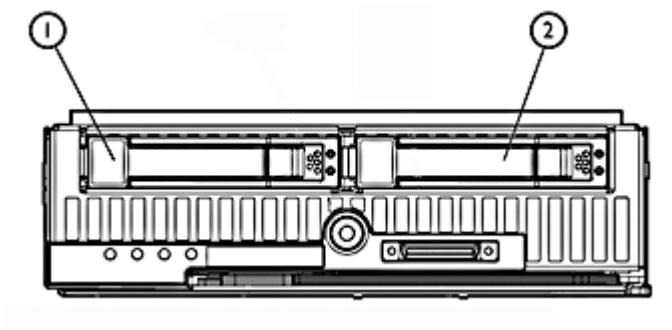
- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB

Memory

Following are memory options available from HP:

Registered DIMMs (RDIMMs)	
HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21
Unbuffered with ECC DIMMs (UDIMMs)	
HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.



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

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

SAS Hot Plug SFF Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K 300GB 3G SAS 10K 146GB 6G SAS 15K 146GB 3G SAS 15K 146GB 6G SAS 10K 146GB 3G SAS 10K 72GB 6G SAS 15K 72GB 3G SAS 15K 72GB 3G SAS 10K 36GB 3G SAS 15K	2	1-2	HP Smart Array P410i Controller

SAS Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	2	1-2	HP Smart Array P410i Controller

SATA Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K 160GB 3G SATA 7.2K	2	1-2	HP Smart Array P410i Controller

SATA SFF Hot Plug Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K 120GB 1.5 G SATA 5.4K	2	1-2	HP Smart Array P410i Controller

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
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

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_na/12408_na.html

System Unit	**Dimensions** (H x W x D) (with bezel)	7.154 x 2.19 x 20.058 in (18.17 x 5.56 x 50.95 cm)	
	Weight (approximate)	Maximum (all hard drives and processors installed)	14.20 lb (6.44 kg)
		Minimum (one hard drive and processor installed)	10.75 lb (4.87 kg)
	Power Specifications	For power specifications including Input Requirements, BTU Rating, and Power Supply Output, please see the HP BladeSystem c-Class Enclosures QuickSpecs located at URL: HP BladeSystem c3000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html HP BladeSystem c7000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html To review typical system power ratings use the HP BladeSystem Power Sizer which is available via the online tool located at URL: http://www.hp.com/go/bladesystem/powercalculator	
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	For acoustic noise specifications, please see the HP BladeSystem c-Class Enclosures QuickSpecs located at URL:	

		HP BladeSystem c3000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html HP BladeSystem c7000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html
HP Smart Array P410i Controller	Disk Drive Interface	3Gb (6Gb Capable) SAS (Serial Attached SCSI) 1.5Gb (3Gb Capable) SATA (Serial Advanced Technology Attachment)
	Server Interface	x4 PCI Express host interface
	Cache Memory	0 MB (none) standard Optional 256MB or 512MB Cache Memory
	Logical Drives Supported	2 (with standard 0MB cache)
	Maximum Logical Drive Capacity	32 (with optional 256MB cache) 64 (with optional 512MB cache)
	Host Memory Addressing	64-bit, supporting servers memory space greater than 4 GB
	RAID Support	RAID 1(Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	Controller: Upgradeable Firmware with Recovery ROM feature Online Drive Flash (with SAS drives) requires 256MB or 512MB module
Embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter	Type	Integrated dual-port KR 10GbE
	Network Processor	Broadcom 57711
	Data Transfer Method	x4 PCI Express Generation 2
	Network Transfer Rate	Two ports, each at 20 Gbps full duplex; 40 Gbps aggregate full duplex theoretical bandwidth NOTE: Each port is autosensing 1 Gb / 10 Gb, and can interoperate with 1 Gb HP BladeSystem c-Class interconnect components. NOTE: Each port on the NC532i adapter transmits from the server at only 20 Gbps (theoretical) full duplex.
	IEEE Compliance	802.1p, 802.1q, 802.3u, 802.3ad, 802.3ae, 802.3ap (10GBase-KX4), 802.3x and 802.3z

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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