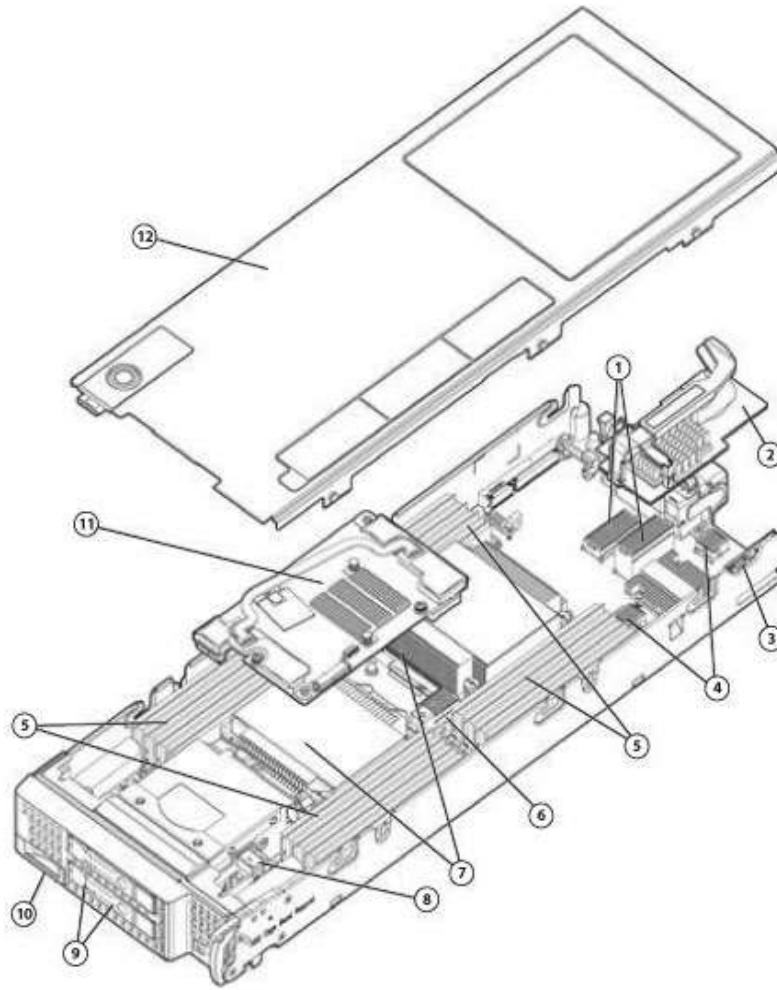


Overview

HP ProLiant BL460c Gen8 Server Blade



HP ProLiant BL460c Generation 8 (Gen8) Server Blade

1. Two (2) PCIe 3.0 mezzanine I/O expansion slots
2. FlexibleLOM adapter
3. MicroSDHC card connector
4. FlexibleLOM connectors (supporting one (1) FlexibleLOM)
5. Sixteen (16) DDR3 DIMM memory slots (8 per processor)
6. HP Smart Array P220i Controller connector
7. Up to two (2) Intel® Xeon® E5-2600 family processors
8. Internal USB 2.0 and Trusted Platform Module (TPM) connectors
9. Two (2) small form factor (SFF) hot-plug drive bays
10. HP c-Class Blade SUV (Serial, USB, VGA) connector
11. HP Smart Array P220i Controller with 512MB FBWC
12. Access panel

What's New

- Support for HP 1.2TB 6G SAS 10K 2.5in DP ENT SC HDD
- Support for 600 GB and 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Hard Drives
- Support for HP Oneview Software License
- Support for HP Secure Encryption, a data security option for the HP Smart Array P731m and the P230i Controllers
- New HP SmartMemory 24GB @1333 Memory low voltage option kit (761501-B21)
- Support for HP FlexFabric 20Gb 2-port 630 FLB FlexibleLOM

Standard Features

NOTE: This document covers the HP ProLiant BL460c Gen8 server blade only. For information on HP BladeSystems c-Class Enclosures and HP BladeSystem c-Class Interconnect and Mezzanine Components, please see the following:

HP BladeSystem c-Class Enclosures QuickSpecs:

- HP BladeSystem c3000 Enclosure QuickSpecs at http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html
NOTE: The c3000 HP c-Class enclosures have full backwards and forwards compatibility, existing server blades are supported in the new enclosures and any future server blades will be supported in the existing enclosures.
- HP BladeSystem c7000 Enclosure QuickSpecs at http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html
NOTE: The c7000 HP c-Class enclosures have full backwards and forwards compatibility, existing server blades are supported in the new enclosures and any future server blades will be supported in the existing enclosures.
- HP BladeSystem c-Class Interconnect and Mezzanine Components at <http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html>
<http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html>

NOTE: For optimal cooling and system performance the BL460c Gen8 Server Blade requires the c7000 enclosure to be configured with 10 fans and the c3000 enclosure to be configured with 6 fans.

NOTE: For proper BladeSystem operation, the minimum required versions of HP Onboard Administrator and HP Virtual Connect are required and available via the HP Service Pack for ProLiant, please see <http://www.hp.com/go/spp/download>.

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor

One of the following depending on Model

E5-2600 v2 series Processors

Intel® Xeon® E5-2697 v2 (2.7GHz/12-core/30MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/3/3/4/5/6/7/8)

Intel® Xeon® E5-2695 v2 (2.4GHz/12-core/30MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/4/5/6/7/8)

Intel® Xeon® E5-2690 v2 (3.0GHz/10-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/3/3/4/5/6)

Intel® Xeon® E5-2680 v2 (2.8GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-3/3/3/3/3/4/5/6/7/8)

Intel® Xeon® E5-2670 v2 (2.5GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/5/6/7/8)

Intel® Xeon® E5-2660 v2 (2.2GHz/10-core/25MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2-4/4/4/4/4/4/5/6/7/8)

Intel® Xeon® E5-2650 v2 (2.6GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2-4/4/4/4/5/6/7/8)

Intel® Xeon® E5-2650L v2 (1.7GHz/10-core/25MB/8.0GT-s QPI/70W, DDR3-1600, HT, Turbo2-2/2/2/2/2/2/2/3/4)

Intel® Xeon® E5-2667 v2 (3.3GHz/8-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-3/3/3/3/4/5/6/7)

Intel® Xeon® E5-2643 v2 (3.5GHz/6-core/25MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2-1/1/1/1/2/3)

Intel® Xeon® E5-2637 v2 (3.5GHz/4-core/15MB/8.0GT-s QPI/130W, DDR3-1866, HT, Turbo2- 1/1/2/3)

Intel® Xeon® E5-2640 v2 (2.0GHz/8-core/20MB/7.2GT-s QPI/95W, DDR3-1600, HT, Turbo2-3/3/3/3/3/3/4/5)

Intel® Xeon® E5-2630 v2 (2.6GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2-

Standard Features

3/3/3/3/4/5)

Intel® Xeon® E5-2630L v2 (2.4GHz/6-core/15MB/7.2GT-s QPI/60W, DDR3-1600, HT, Turbo2-2/2/2/2/3/4)

Intel® Xeon® E5-2620 v2 (2.1GHz/6-core/15MB/7.2GT-s QPI/80W, DDR3-1600, HT, Turbo2-3/3/3/3/4/5)

Intel® Xeon® E5-2609 v2 (2.5GHz/4-core/10MB/6.4GT-s QPI/80W)

Intel® Xeon® E5-2603 v2 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W)

E5-2600 series Processors

Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/8.0GT-s QPI/135W, DDR3-1600, HT, Turbo2-4/4/4/5/5/7/7/9)

Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/8.0GT-s QPI/130W, DDR3-1600, HT, Turbo2-4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/8.0GT-s QPI/115W, DDR3-1600, HT, Turbo2-4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/8.0GT-s QPI/115W, DDR3-1600, HT, Turbo2-4/4/5/5/6/6/7/7)

Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/8.0GT-s QPI/130W, DDR3-1600, HT, Turbo2- 3/3/3/4/5/6)

Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1600, HT, Turbo2-5/5/6/6/7/7/8/8)

Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1600, HT, Turbo2-4/4/5/5/5/7/8/8)

Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/8.0GT-s QPI/70W, DDR3-1600, HT, Turbo2-2/2/3/3/4/4/5/5)

Intel® Xeon® E5-2643 Kit (3.30 GHz/4-core/10MB/130W) Processor

Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/8.0GT-s QPI/80W, DDR3-1600, HT, Turbo2- 5/5)

Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/8.0GT-s QPI/60W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)

Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/6.4GT-s QPI/80W)

Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/6.4GT-s QPI/80W)

NOTE: The Intel Xeon E5-2600 Processor Family cannot be configured with the new 1866MHz HP Smart Memory or the new 1600MHz Low Voltage (1.35v) HP Smart Memory.

NOTE: DIMM slots 4 and 5 are not accessible when either the E5-2690, the E5-2643, the E5-2643 v2, or the E5-2637 v2, or the E5-2667 v2 is used. In a 2 processor configuration, there are twelve (12) total available DIMM slots.

NOTE: For the maximum supported memory speeds for each processor listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

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 8, 7, 6, 5, 4, 3, 2 or 1 core(s) 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: Up to 2 processors supported. Mixing different processor models is not supported.

NOTE: For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, and x = L for low power SKUs.

NOTE: The BL460c Gen8 supports one or two processors.

NOTE: The BL460c Gen8 includes two I/O mezzanine expansion slots. A processor must be installed in processor slot 1 for access to the first mezzanine expansion slot (expansion slot 1). A processor must

Standard Features

be installed in processor slot 2 for access to the second mezzanine expansion slot (expansion slot 2).

NOTE: All processors within the server must be identical.

NOTE: All processors support Intel® Hyper-Threading and Intel® Turbo Boost Technologies except the E5-2603 and E5-2609.

NOTE: The letter "L" following the model number indicates denotes lower wattage.

NOTE: The processor model as well as the memory configuration determines the maximum speed memory can operate. Please see the see the "Memory" section later in this document.

NOTE: The Intel Xeon E5-2620 processor does not support DIMMs at 1.35V. Using the HP RBSU, 1.35V DIMMs can be changed to operate at 1.5V.

Cache Memory

One of the following depending on Model

30MB (1x30MB) L3 cache

NOTE: For Twelve-core processors.

25MB (1x25MB) L3 cache

NOTE: For Six, Eight or Ten-core processors.

20MB (1x20MB) L3 cache

NOTE: For Eight-core processors.

15MB (1x15MB) L3 cache

NOTE: For Quad or Six-core processors.

10MB (1x10MB) L3 cache

NOTE: For Quad-core processors.

5MB (1x5MB) Level 3 cache

NOTE: For Dual-core processors.

Chipset

Intel® C600 Series Chipset

Intel® E5-2600 and 2600v2 Processor Families

NOTE: For more information regarding Intel chipsets, please see the following:

<http://www.intel.com/products/server/chipsets/>.

Upgradeability

Upgradeable to two (2) processors

NOTE: Processor upgrade available from Intel® Xeon® Processors E5-2600 to E5-2600 v2. Please contact HP Technology Sales (<http://www.hp.com/support>), your local HP Re-seller, or reference the following Customer Advisory: [ProLiant Servers-Instructions for Upgrading an HP ProLiant Gen8 Server from an Intel Xeon Processor E5-2600 to an Intel Xeon Processor E5-2600 v2](#), regarding critical details before upgrading. An explanation of requirements and limitations are provided.

On System Management Chipset

HP iLO (Firmware: HP iLO 4)

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

Memory Protection

Advanced ECC

Memory Online Spare Mode (Rank Spare Mode)

Lockstep Mode

Memory

One of the following depending on Model

Type

HP SmartMemory

DDR3 Load Reduced (LRDIMM), Registered (RDIMM), or Unbuffered ECC (UDIMM)

Standard (Pre-configured Models)

64GB (8 x 8GB) DDR3 1600MHz RDIMMs at 1.5V
 64GB (4 x 16GB) DDR3 1866MHz RDIMMs at 1.5V
 32GB (4 x 8GB) DDR3 1600MHz RDIMMs at 1.5V
 32GB (2 x 16GB) DDR3 1866MHz RDIMMs at 1.5V
 32GB (4 x 8GB) DDR3 1333MHz RDIMMs at 1.35V
 32GB (2 x 16GB) DDR3 1600MHz RDIMMs at 1.35V

Standard Features

	16GB (2 x 8GB) DDR3 1866MHz RDIMMs at 1.5V
	16GB (4 x 4GB) DDR3 1333MHz RDIMMs at 1.35V
	16GB (2 x 8GB) DDR3 1600MHz RDIMMs at 1.35V
Maximum (LRDIMM)	512GB (16 x 32GB) up to 1333MHz at 1.35V
Maximum (RDIMM)	256GB (16 x 16GB) up to 1866MHz at 1.5V 384GB (16 x 24GB) up to 1333MHz at 1.35V
Maximum (UDIMM)	128GB (16 x 8GB) up to 1600MHz at 1.5v

NOTE: HP memory from previous generation servers are not qualified or warranted with this server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html

NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.

NOTE: The internal USB 2.0 Port is not available when the HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage FIO Memory Kits (700404-B21) are used.

NOTE: The Intel Xeon E5-2600 Processor Family cannot be configured with the new 1866MHz HP Smart Memory or the new 1600MHz Low Voltage (1.35v) HP Smart Memory.

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1866MHz, 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

Network Controller

One of the following depending on Model

One (1) HP FlexFabric 10Gb 2-port 534FLB FlexibleLOM, HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM, or HP FlexFabric 20Gb 2-port 630FLB FlexibleLOM

NOTE: Supports FCoE, Flex-10, TCP/IP offload engine, hardware-based accelerated iSCSI, iSCSI boot, and autosensing 20Gb/10Gb/1Gb Ethernet.

NOTE: Each port is autosensing 1Gb/10Gb/20Gb, and can interoperate with 1Gb HP BladeSystem c-Class interconnect components. Both ports will operate at the same speed.

NOTE: FlexFabric capabilities require the use of an HP Virtual Connect FlexFabric module. Fibre Channel over Ethernet (FCoE) is supported with the HP 10GbE Pass-Thru Module, HP 6120XG Blade Switch with the CEE license installed, HP Cisco B22HP Fabric Extender and HP Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class. Learn more at: <http://www.hp.com/go/bladesystem/interconnects>

One (1) HP Flex-10 10Gb 2-port 530FLB FlexibleLOM

One (1) HP Ethernet 10Gb 2-port 560FLB FlexibleLOM

NOTE: FlexibleLOMs are not compatible with prior generation c-Class server blades

Standard iLO Network Controller:

One (1) 10/100 Mbps port for the HP iLO 4 to Onboard Administrator link. The Onboard Administrator (with 10/100/1000 Mbps) to BladeSystem link is 1Gbps

Expansion Slots

Two (2) I/O expansion mezzanine slots:

- x16 PCIe 3.0 Type A (supports Type A mezzanine cards) (expansion slot 1).
NOTE: This expansion slot supports dual-port mezzanine cards: one port is routed to interconnect module bay 3 and the other to bay 4.
- x16 PCIe 3.0 Type B (supports Type A and Type B mezzanine cards) (expansion slot 2).
NOTE: This expansion slot supports dual-port and quad-port mezzanine cards. For dual-port cards, one port is routed to interconnect module bay 5 and the other to bay 6. For quad-port cards, one port is routed to interconnect module bay 5, one to bay 6, one to bay 7, and one to bay 8.
NOTE: A second processor must be installed (in processor slot 2) to have access to the second expansion slot (expansion slot 2).

Mezzanine card options include:

Standard Features

- Dual-port 10Gb FlexFabric, Dual-port 20Gb FlexFabric, 10Gb Flex-10, 10GbE options, and quad-port 1Gb Ethernet server adapter mezzanine options for additional network ports.
- Dual-port 8Gb and 16Gb Fibre Channel HBA for SAN connectivity.
- QDR and FDR InfiniBand for low latency and high bandwidth server interconnectivity.
- I/O accelerator mezzanine options for high transaction rate local storage

HP Server ROM

HP ROM (read only memory) is now digitally signed using HP's Corporate Signing Service. This signature is verified before the flash process starts, reducing accidental programming and preventing malicious efforts to corrupt system ROM.

HP ROM provides for essential initialization and validation of hardware components before control is passed to the customer-installed operating system. The ROM also provides the capability of booting from various fixed media (HDD, CD-ROM) and removable media (USB), to continue operation to the operating system.

HP ROM performs very early configuration of the video controller, to allow monitoring of initialization progress via an attached monitor. If configuration or hardware errors are discovered during this early phase of hardware initialization, suitable messages are now displayed on the connected monitor. Additionally, these configuration or hardware errors are logged to the Integrated Management Log (IML) to assist in diagnosis.

HP's ProLiant ROM is used to configure the following:

- Processor and chipset status registers
- System memory, memory map, and memory initialization
- System hardware configuration (integrated PCI devices and optional PCIe cards).
- Customer-specific BIOS configuration using the HP ROM-Based Setup Utility (RBSU).

NOTE: For further information, please refer to HP's RBSU (ROM based setup utility) user guide: www.hp.com/support/rbsu

Storage Controller

All BTO Models

One (1) HP Smart Array P220i Controller with 512MB Flash-Backed Write Cache (FBWC) supporting RAID 0 and RAID 1.

NOTE: Upgradeable firmware with recovery ROM.

NOTE: The HP Smart Array P220i supports two (2) small form factor (SFF) hot plug drive bays.

NOTE: The server supports up to a combined total of two (2) FBWC supercap options.

NOTE: The HP Smart Array P220i Controller FIO Kit (690164-B21) comes included with the HP ProLiant BL460c Gen8 10Gb FlexibleLOM Configure-to-order Blade Server (641016-B21). However when choosing the HP ProLiant BL460c Gen8 E5-v2 10Gb FlexibleLOM Configure-to-order Blade Server (735151-B21), the HP Smart Array P220i Controller FIO Kit (690164-B21) must be added separately as part of the Server Blade Configuration Process.

Maximum Internal Storage

One of the following depending on Model

Hot Plug SFF SAS	2.4TB	2 x 1.2TB
Hot Plug SFF SATA	2.0TB	2 x 1.0TB
Hot Plug SFF SAS SSD	1.6TB	2 x 800GB
Hot Plug SFF SATA SSD	1.6TB	2x800GB

NOTE: The ProLiant BL460c Gen8 server includes the new HP hot plug small form factor (SFF)

Standard Features

SmartDrive carrier for enhanced management and reduced maintenance errors. HP drives from previous generation servers are not compatible with the ProLiant BL460c Gen8 drive bays.

Interfaces

Micro SDHC Slot One (1) internal Micro Secure Digital High Capacity (Micro SDHC) card slot
USB 2.0 Port One (1) internal USB 2.0 connector for USB flash media drive keys

NOTE: The above options are for integrated hypervisor virtualization environments needing a low cost boot solution with the highest performance and reliability.

NOTE: The internal USB 2.0 Port is not available when the HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage FIO Memory Kits (700404-B21) are used.

Industry Standard Compliance

ACPI 2.0
Microsoft® Logo certifications
USB 2.0 Support
IPMI 2.0
Secure Digital 2.0
TPM 1.2 Support
IEEE (specific IEEE standards depending on Ethernet adapter card(s) installed)
Advanced Encryption Standard (AES)
Triple Data Encryption Standard (3DES)
SNMP
SSL 2.0
DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP)
Active Directory v1.0
PCIe 3.0

Operating Systems and Virtualization Software Support for ProLiant Servers

[Microsoft Windows Server](#)
[Red Hat Enterprise Linux \(RHEL\)](#)
[SUSE Linux Enterprise Server \(SLES\)](#)
[Canonical Ubuntu](#)
[Oracle Solaris](#)
[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/BL460cGen8>

Enclosures

HP offers two 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 Gen8 servers plugged vertically.
- The HP BladeSystem c3000 rack enclosure is 6U high and holds up to eight (8) HP ProLiant BL460c Gen8 servers plugged horizontally.
- 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.

NOTE: For additional enclosure information, please see:

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

Graphics

Integrated Matrox G200 video standard

- 1280 x 1024 (32 bpp)

Standard Features

- 1920 x 1200 (16 bpp)

HP iLO 4 On System Management Memory

- 16 MB Flash Video Memory
- 256 MB DDR 3 with ECC (112 MB after ECC and video)

Form Factor	HP ProLiant BL460c Gen8 is a half-height server blade that plugs into the HP BladeSystem c3000 and c7000 enclosures.
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On System Management	HP iLO Management Engine	HP iLO Management Engine is a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. HP iLO Management Engine comes standard on all HP ProLiant Gen8 servers. The HP iLO Management Engine portfolio includes:
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- **HP iLO:** The HP iLO management processor is the core foundation for other capabilities within HP iLO Management Engine
- **HP Agentless Management:** Provides built in server health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
- **HP Active Health System:** Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration history; Health and service alerts and easy export and upload to Service and Support.
- **HP Intelligent Provisioning:** Lets customers provision and configure a single server without any separate media. No more SmartStart CDs or Smart Update Firmware DVD are needed.
 - To start Intelligent Provisioning:
 - Press the F10 key during the ProLiant Gen8 server boot process (also known as power on self test or POST).
 - Please go to the Intelligent Provisioning website at www.hp.com/go/intelligentprovisioning for additional information and to view usage videos.
 - Use the Service Pack for ProLiant (SPP) at www.hp.com/go/spp to get firmware and software updates.
- **HP iLO Mobile App:** Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: www.hp.com/go/ilo/mobileapp

NOTE: For more information, visit: <http://www.hp.com/go/ilo> or **HP iLO Management Engine technologies whitepaper**

HP Insight management software	HP Service Pack for ProLiant (SPP)	HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) provide a comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new HP server hardware launches. By enabling
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Standard Features

firmware to be updated online and integrating firmware and system software updates in one operation, HP SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire BladeSystem enclosures. Further improving system uptime and stability is the fact that HP provides 12 months of support for each Service Pack for ProLiant release.

The user experience around HP SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HP SUM and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HP SUM application provides a straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hp.com, HP SUM provides the tools to optimize stability and consistency throughout the company. While HP SUM and the SPP recommend the combinations of firmware and system software that HP has found to be the best practice, the application gives customers the flexibility to set their own specific baseline.

The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the BladeSystem enclosure components (Onboard Administrator and Virtual Connect). This testing ensures the highest quality as well as providing the input for HP SUM to deploy updates taking into account all interdependencies, when determining the correct updates and order of update deployment.

NOTE: The Service Pack for ProLiant (which includes HP SUM) can be downloaded from www.hp.com/go/spp/download. More information can be found: <http://www.hp.com/go/SmartUpdate>, www.hp.com/go/spp and <http://www.hp.com/go/hpsum>

Security

- Power-on password
- Administrator's password
- Keyboard password (QuickLock)
- HP iLO 4 On System Management Chipset with:
 - SSL encryption
 - Secure Shell version 2
 - Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface
 - AES and RC4 encryption of video
- External USB port enable/disable
- Network server mode
- Serial interface control
- TPM (Trusted Platform Module) 1.2 option
- Advanced Encryption Standard (AES)
- Intel® Advanced Encryption Standard-New Instructions (AES-NI)

Availability

Memory

- Advanced ECC uses single device data correction (SDDC) to detect and correct single and all multi-bit error that occurs within a single DRAM chip. Both x4 and x8 SDDC are supported (x8

Standard Features

- requires lockstep mode).
- Memory online spare mode (also known as rank spare mode) detects a rank that is degrading and switches operation to the spare rank.
- Memory Lockstep mode is used to correct a single x8 DRAM device failure on a DIMM. The DIMMs in each paired memory channel must have identical HP part numbers.
- Memory demand and patrol scrubbing to prevent accumulation of correctable errors and reducing the likelihood of unplanned downtime.
- Failed DIMM isolation improves the service time thus improving the overall system availability.
- Address parity protection available on RDIMMs and LRDIMMs detects address bit errors to improve service time and overall system availability.

Mezzanine options and I/O

- Support for one (1) FlexibleLOM, providing two (2) (i.e. redundant) Ethernet ports
- Multiple mezzanine I/O expansion slots that support a wide variety of mezzanine cards each supporting multiple data paths routed to redundant interconnect modules.
- Network Adapter Teaming (bonding) provides network fault tolerance, transmit load balancing, and switch-assisted load balancing.

Storage

- Two (2) Small Form Factor hot-plug SAS/SATA/SSD drive bays.
- Integrated HP Smart Array P220i Controller with 512MB FBWC, RAID 0 and 1 support, and upgradeable firmware with recovery ROM capability.
- Optional HP D2200sb Storage Blade for direct attachment of up to 12 drives to an adjacent blade within the c-Class enclosure.
- Optional dual-port Fibre Channel mezzanine card(s) for redundant SAN connections.

Processor/Chipset

- Processor internal sensors & thermal control protection against over-temperature conditions.
- Cache parity/ECC protects cache data from accidental data corruption.
- Machine Check Architecture (MCA) detects and captures hardware errors such as system bus, memory ECC, parity, and cache, and improves service time.
- Intel® QPI Protocol Protection allows detection of data errors using a checksum of 8-bits.
- Core Disable for FRB (fault resilient boot) allows a system to power-on despite a failing core-pair. It uses BIST (built-in self-test) results to detect a failure and disables the target core-pair upon subsequent boot.

Server Blade Enclosure Infrastructure

- Pooled power for true N+N power redundancy through up to six (6) hot-plug, high-efficiency, common slot enclosure-based power supplies (configuration dependent).
- Up to ten (10) redundant enclosure-based hot-plug HP Active Cool fans that scale to meet future demands and optimize airflow, reduce power draw, and improve acoustic performance.
- Dual grid power providing redundant rack enclosure power feeds to the server blade enclosure.
- HP Dynamic Power Saver Mode the total enclosure power consumption is monitored in real time and automatically adjusted with changes in demand for improved efficiency and reliability.
- HP Dynamic Power Capping safely limits power usage without impacting performance by

Standard Features

capping peak usage instead of average power usage, removes risk to electrical infrastructure with a fast-acting, hardware-based capping algorithm, and reclaims more power by dynamically controlling power limits based on workload demand.

- Up to eight interconnect modules per server blade enclosure providing four simultaneous redundant fabrics for FlexFabric, Virtual Connect Ethernet, Fibre Channel, InfiniBand, Pass Thru Ethernet, etc.
- Enclosure crosslinks between adjacent enclosures to provide interconnect module-to-module connections or as Virtual Connect module stacking links.
- Optional enclosure redundant Onboard Administrator system management module.

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 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>.

Optional Features

Fibre Channel Support	Up to two (2) optional Fibre Channel mezzanine HBAs are supported on the HP ProLiant BL460c Gen8.	
Compatible SAN	<p>HP ProLiant BL460c Gen8 server blades are optimized for HP MSA, EVA and XP.</p> <p>HP ProLiant BL460c Gen8 server blades are compatible with select 3rd party SANs. Please see blade storage page for more details at http://h18004.www1.hp.com/products/blades/components/c-class-sans.html.</p>	
HP Virtual Connect	<p>HP Virtual Connect is an interconnect option for BladeSystem c-Class that simplifies server connectivity to data and storage networks, and reduces costs. Unique HP Flex-10 technology makes maximum use of network bandwidths, provide dynamic tuning and enable extreme flexibility to meet individual server and infrastructure requirements by allocating up to 4 network connections per server port. Virtual Connect FlexFabric modules extend those capabilities to allocate one function per port to storage connections. HP Virtual Connect Enterprise Manager (VCEM) provides server management software with a central console to administer network connections and workloads for thousands of servers. For more information on Virtual Connect Enterprise Manager, see http://www.hp.com/go/vcem. For more information on Virtual Connect Ethernet, Fibre Channel, Converged Network and management options, see http://www.hp.com/go/virtualconnect.</p>	
HP Insight management software	HP Insight Control	<p>HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see http://www.hp.com/go/insightcontrol.</p>
		<p>HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, see http://www.hp.com/services/insight.</p>
	HP Matrix Operating Environment	<p>The HP Matrix Operating Environment (Matrix OE) for ProLiant and Integrity servers is an integrated command center that helps you instantly adjust to dynamic business demands. This advanced infrastructure management software lets you reduce the cost of common data center tasks by up to 40 percent while keeping pace with your changing business.</p>
		<p>The HP Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HP CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS). For more information, see http://www.hp.com/go/matrixoe.</p>
	HP iLO Scale-Out	<p>The HP iLO Scale-Out license ideal for web/hosting/cloud service providers and High Performance Computing environments. This license is a specific subset of iLO Advanced functionality, provides fast remote access through Text Console via SSH, lower operational cost with Dynamic power capping, and faster time to resolution through Email-based Alerting and proactive notifications. With this newly designed HP iLO Scale-Out HPC customers now have a server management package solely design and priced for their massive data environments. HP iLO Scale-Out is available on all HP ProLiant Gen8 SL platforms.</p> <p>For more information, see: http://www.hp.com/go/iLO/scale-out</p>
	HP iLO Advanced License for ProLiant Servers	<p>HP iLO management processors for HP ProLiant Gen8 servers virtualizes system controls to help simplify server setup, engage health monitoring and power and thermal control, and promote remote administration. HP iLO functions out-of-the-box without additional software installation and</p>

Optional Features

functions regardless of the servers' state of operation. The HP iLO can be accessed from any location via a web browser and works hand-in-hand with HP Systems Insight Manager, Insight Control, and Matrix Operating Environment, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service to the business.

Advanced functionality, such as graphical remote console, multi-user collaboration, and video record/playback can be activated with the optional HP iLO Advanced or HP iLO Advanced for BladeSystem licenses. The Advanced licensed features offer sophisticated remote administration of servers in dynamic data center and remote locations and can help significantly reduce cost associated with IT-related travel and unplanned downtime.

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

HP OneView

The HP OneView architecture combines server, storage, and networking with control of datacenter environmentals into a single, integrated management platform. Architected to deliver lifecycle management for the complete Converged Infrastructure, it facilitates collaboration, removes friction, collapses cycle times, eliminates error-prone work, and accelerates time to value. HP OneView v1.0 combines management of servers and virtual connect with open integration to automate and customize existing tools and processes. With OneView, you'll work smarter—with greater visibility and control—and fully capitalize on the benefits of a Converged Infrastructure.

For more information on HP OneView management, see: <http://www.hp.com/go/oneview>.

High Performance Clusters

HP Cluster Platforms	HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters
HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
HP Insight Cluster Management Utility	HP Insight Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used for lifecycle management of hyperscale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. http://www.hp.com/go/cmU

Storage Software

Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than HP storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.

Storage software that gets the job done:

- **Data Protection and Recovery Software**
Whether you're a large enterprise or a smaller business, HP data protection and recovery

Optional Features

software will cost-effectively protect you against disaster and ensure business continuity.

- **Data Archive and Migration Software**
HP's storage software enables you to comply with data retention and retrieval requirements, improve application performance, and reduce costs by efficiently migrating infrequently accessed or less valuable data to lower cost storage.
- **Storage Resource Management Software (SRM)**
HP's storage resource management software reduces operational costs and provides the command and control foundation you need to efficiently manage and visualize your physical and virtual environments.
- **Data Replication Software**
HP offers array-based and host-based replication software for use in disaster recovery, testing, application development and reporting.
- **Storage Device Management Software**
Maximize your investment in HP storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.
- **HP StoreVirtual VSA**
HP StoreVirtual VSA allows you to create fully featured shared storage on a VMware vSphere or Microsoft Hyper-V virtualized server. This server model starting November 2013, includes a limited license for HP StoreVirtual VSA software with 1TB of capacity. To download the license key and StoreVirtual VSA software, visit: www.hp.com/go/unlockVSA.
NOTE: You will need your server serial number in order to complete the registration form. Fully functional, capacity-based licenses are available in 4TB, 10T and 50TB sizes. For more information and access to the 60-day free trial, visit: www.hp.com/go/tryVSA

NOTE: For more information available Storage Software including QuickSpecs, please see: www.hp.com/go/storage/software.

HP Insight Online

HP Insight Online is a new addition to the HP Support Center for one stop, secure access to product and HP support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HP Insight Remote Support. With Insight Online's easy navigation you can efficiently track your IT support contracts and device status from anywhere and at anytime. <http://www.hp.com/go/insightonline>

HP Proactive Insight experience

Prevent problems with innovative, automated monitoring tools and proactive services. The HP Proactive Insight experience consist of using Insight Online, Insight Remote Support, and Proactive Care Support Service as one integrated solution. The Proactive Insight experience provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: www.hp.com/go/proactiveinsightexperience

Expansion Blade Support

Supports one (1) optional storage, tape, or PCI expansion blade.

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.

Optional Features

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.html>

HP Simple Configurator

SCE is a guided self-service tool to help sales and non-technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>

Service and Support

Service and Support

HP Technology Services for Industry Standard Servers and BladeSystem

Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

Protect your business beyond warranty with HP Care Pack Services

HP Care Pack services offer complete care and support expertise with committed response choices designed to meet your IT and business needs.

HP Foundation Care services offer scalable reactive support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for your IT and business needs. HP Proactive Care delivers high levels of system availability through proactive service management and advanced technical response.

Recommended HP Care Pack Services for your HP product

Optimized Care

3-Year HP 6 hour Call to Repair Response, Proactive Care

Combined reactive and proactive support for hardware and software helping optimize your systems and delivering high levels of availability through proactive service management and advanced technical response. Hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request. A Technical Account Manager, as your single point of contact, will own your call or issue end to end until resolved.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855EEE.pdf>

HP Install c-Class Server Blade Service

This easy-to-buy, easy-to-use HP Care Pack service helps ensure that your new HP hardware is installed smoothly, efficiently, and with minimal disruption of your IT and business operations.

Standard Care

3-Year HP 24x7 4 hour response, Proactive Care Service

This service gives you combined reactive and proactive support including rapid access to our Advanced Solution Center to manage and prevent problems and a Technical Support Specialist with a broad level of technical knowledge that will engage with additional technical expertise as needed from HP's vast global resources.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855EEE.pdf>

HP Install c-Class Server Blade Service

This easy-to-buy, easy-to-use HP Care Pack service helps ensure that your new HP hardware is installed smoothly, efficiently, and with minimal disruption of your IT and business operations

Related Services

HP Proactive Care Personalized Support - Environmental Option

The Personalized Support option provides an assigned Account Support Manager who can bring best practices from across the industry plus extra technical skills to your IT team. This option is only available as an add-on to HP Proactive Care Support.

HP Proactive Select Service

Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf>

NOTE: Additional HP Care Pack services can be found at: <http://www.hp.com/go/cpc>.

Insight Online/Insight Remote Support

HP Insight Remote Support provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. This comes at no additional cost with your HP solution. Learn more about Insight Remote

Service and Support

Support <http://www.hp.com/go/insightremotesupport> and Insight Online <http://www.hp.com/go/insightonline>

NOTE: Insight Remote Support is a prerequisite for Proactive Care. All blades within a single HP BladeSystem enclosure must be at the same service level.

HP Support Center

Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more <http://www.hp.com/go/hpsc>

HP's Support Center Mobile App** allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

NOTE: HP Support Center Mobile App is subject to local availability.

Parts and Materials

HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction.

For more information

To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: www.hp.com/services/bladesystem

Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

NOTE: Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.

NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.

NOTE: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

NOTE: All Pre-configured Models come populated with some hard drive blanks installed.

NOTE: Not all models are available in all regions. Check with your local country HP offices for availability.

E5-2600 v2 series Processors

HP ProLiant BL460c Gen8 E5-2670v2 2P 64GB-R P220i/512 FBWC Server 724082-B21	Processor(s) Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Bay Expansion Slots Management Form Factor Warranty	(2) Intel® Xeon® E5-2670 v2 (2.5GHz/10-core/25MB/8.0GT-s QPI/115W, DDR3-1866, HT, Turbo2- 4/4/4/4/4/4/5/6/7/8) 25MB (1x25MB) Level 3 cache 64GB (4x 16GB) PC3-14900R (DDR3-1866) Registered DIMMS at 1.5V NOTE: Total of 16 DIMM slots. HP FlexFabric 10Gb 2-port 534FLB FlexibleLOM HP Smart Array P220i Controller with 512MB FBWC RAID 0,1 None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD: 1.6TB None 2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards. HP iLO Management Engine (standard) Optional: HP iLO Scale-Out or HP Insight Control 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 Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.
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HP ProLiant BL460c Gen8 E5-2660v2 2P 64GB-R P220i/512 FBWC Server 724083-B21	Processor(s) Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Bay Expansion Slots Management	(2) Intel® Xeon® E5-2660 v2 (2.20GHz/10-core/25MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2- 4/4/4/4/4/4/5/6/7/8) 20MB (1x25MB) Level 3 cache 64GB (4x 16GB) PC3-14900R (DDR3-1866) Registered DIMMS at 1.5V NOTE: Total of 16 DIMM slots. HP FlexFabric 10Gb 2-port 534FLB FlexibleLOM HP Smart Array P220i Controller with 512MB FBWC RAID 0,1 None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB ; SATA SSD: 1.6TB None 2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards. HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
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Models

	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
	Warranty	Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.
HP ProLiant BL460c Gen8 E5-2650v2 1P 32GB-R P220i/512 FBWC Server 724084-B21	Processor(s)	(1) Intel® Xeon® E5-2650 v2 (2.6GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1866, HT, Turbo2- 4/4/4/4/5/6/7/8)
	Cache Memory	20MB (1x20MB) Level 3 cache
	Memory	32GB (2x 16GB) PC3-14900R (DDR3-1866 Registered DIMMs at 1.5V) NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.
	Network Controller	HP FlexFabric 10Gb 2-port 534FLB FlexibleLOM
	Storage Controller	HP Smart Array P220i Controller with 512MB FBWC RAID 0,1
	Hard Drive	None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives
	Internal Storage	SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD: 1.6TB
	Optical Drive Bay	None
	Expansion Slots	2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.
	Management	HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
	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
	Warranty	Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.
HP ProLiant BL460c Gen8 E5-2650Lv2 1P 32GB-L P220i/512 FBWC Server 724088-B21	Processor(s)	(1) Intel® Xeon® E5-2650L v2 (1.7GHz/10-core/25MB/8.0GT-s QPI/70W, DDR3-1600, HT, Turbo2- 2/2/2/2/2/2/2/3/4)
	Cache Memory	25MB (1x25MB) Level 3 cache
	Memory	32GB (2x 16GB) PC3L-12800R (DDR3-1600 Registered DIMMs at 1.35V) NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.
	Network Controller	HP FlexFabric 10Gb 2-port 534FLB FlexibleLOM
	Storage Controller	HP Smart Array P220i Controller with 512MB FBWC RAID 0,1
	Hard Drive	None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives
	Internal Storage	SAS: 2.0TB; SATA: 2.0TB; SAS SSD: 1.6TB
	Optical Drive Bay	None
	Expansion Slots	2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.
	Management	HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
	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

Models

	Warranty	Server warranty includes 3-year Parts, 3-year3-year Labor, 3-year on-site support.
HP ProLiant BL460c Gen8 E5-2640v2 1P 32GB-R P220i/512 FBWC Server 724085-B21	Processor(s)	(1) Intel® Xeon® E5-2640 v2 (2.0GHz/8-core/20MB/7.2GT-s QPI/95W, DDR3-1600, HT, Turbo2- 3/3/3/3/3/4/5)
	Cache Memory	15MB (1x15MB) Level 3 cache
	Memory	32GB (2x 16GB) PC3L-12800R (DDR3-1600 Registered DIMMs at 1.35V) NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.
	Network Controller	HP FlexFabric 10Gb 2-port 534FLB FlexibleLOM
	Storage Controller	HP Smart Array P220i Controller with 512MB FBWC RAID 0,1
	Hard Drive	None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives
	Internal Storage	SAS: 2.0TB; SATA: 2.0TB; SAS SSD: 1.6TB
	Optical Drive Bay	None
	Expansion Slots	2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.
	Management	HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
	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
	Warranty	Server warranty includes 3-year Parts, 3-year3-year Labor, 3-year on-site support.
	HP ProLiant BL460c Gen8 E5-2620v2 1P 16GB-R P220i/512 FBWC Server 724086-B21	Processor(s)
Cache Memory		15MB (1x15MB) Level 3 cache
Memory		16GB (2x 8GB) PC3L-12800R (DDR3-1600) Registered DIMMs at 1.35V) NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.
Network Controller		HP FlexFabric 10Gb 2-port 534FLB FlexibleLOM
Storage Controller		Smart Array P220i Controller with 512MB FBWC RAID 0,1
Hard Drive		None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives
Internal Storage		SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD: 1.6TB
Optical Drive Bay		None
Expansion Slots		2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.
Management		HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
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
Warranty		Server warranty includes 3-year3-year Parts, 3-year Labor, 3-year on-site support.
HP ProLiant BL460c Gen8		Processor(s)

Models

E5-2609v2 1P 16GB-L P220i/512 FBWC Server 724087-B21	Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Bay Expansion Slots Management Form Factor Warranty	10MB (1x10MB) Level 3 cache 16GB (2x 8GB) PC3L-12800R (DDR3-1600) Registered DIMMs at 1.35V NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor. HP FlexFabric 10Gb 2-port 534FLB FlexibleLOM HP Smart Array P220i Controller with 512MB FBWC RAID 0,1 None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD: 1.6TB None 2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards. HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control 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 Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.
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E5-2600 series Processors

HP ProLiant BL460c Gen8 E5-2670 2P 64GB-R P220i Server 666157-B21	Processor(s) Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Bay Expansion Slots Management Form Factor Warranty	(2) Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/8.0GT-s QPI/115W, DDR3-1600, HT, Turbo2- 4/4/5/5/6/6/7/7) 20MB (1x20MB) Level 3 cache 64GB (8x 8GB) PC3-12800R (DDR3-1600) Registered DIMMS at 1.5V NOTE: Total of 16 DIMM slots. HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM HP Smart Array P220i Controller with 512MB FBWC RAID 0,1 None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD: 1.6TB None 2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards. HP iLO Management Engine (standard) Optional: HP iLO Scale-Out or HP Insight Control 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 Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.
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HP ProLiant BL460c Gen8 E5-2660 2P 64GB-R P220i SFF Server 666158-B21	Processor(s) Cache Memory Memory	(2) Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1600, HT, Turbo2- 5/5/6/6/7/7/8/8) 20MB (1x20MB) Level 3 cache 64GB (8x 8GB) PC3-12800R (DDR3-1600) Registered DIMMS at 1.5V NOTE: Total of 16 DIMM slots.
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Models

Network Controller	HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM
Storage Controller	HP Smart Array P220i Controller with 512MB FBWC RAID 0,1
Hard Drive	None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives
Internal Storage	SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB ; SATA SSD: 1.6TB
Optical Drive Bay	None
Expansion Slots	2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.
Management	HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
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
Warranty	Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.

HP ProLiant BL460c Gen8 E5-2650 1P 32GB-R P220i SFF Server 666159-B21	Processor(s)	(1) Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/8.0GT-s QPI/95W, DDR3-1600, HT, Turbo2- 4/4/5/5/5/7/8/8)
	Cache Memory	20MB (1x20MB) Level 3 cache
	Memory	32GB (4x 8GB) PC3-12800R (DDR3-1600 Registered DIMMs at 1.5V) NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.
	Network Controller	HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM
	Storage Controller	HP Smart Array P220i Controller with 512MB FBWC RAID 0,1
	Hard Drive	None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives
	Internal Storage	SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD: 1.6TB
	Optical Drive Bay	None
	Expansion Slots	2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.
	Management	HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
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	
Warranty	Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.	

HP ProLiant BL460c Gen8 E5-2650L 1P 32GB-R P220i SFF Server 666163-B21	Processor(s)	(1) Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/8.0GT-s QPI/70W, DDR3-1600, HT, Turbo2- 2/2/3/3/4/4/5/5)
	Cache Memory	20MB Level 3 cache
	Memory	32GB (4x 8GB) PC3L-10600R (DDR3-1333 Registered DIMMs at 1.35V) NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.
	Network Controller	HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM
	Storage Controller	HP Smart Array P220i Controller with 512MB FBWC RAID 0,1
	Hard Drive	None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives

Models

Internal Storage	SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD 1.6TB
Optical Drive Bay	None
Expansion Slots	2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.
Management	HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
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
Warranty	Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.

HP ProLiant BL460c Gen8 E5-2640 1P 32GB-R P220i SFF Server 666160-B21	<p>Processor(s) (1) Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)</p> <p>Cache Memory 15MB (1x15MB) Level 3 cache</p> <p>Memory 32GB (4x 8GB) PC3L-10600R (DDR3-1333 Registered DIMMs at 1.35V) NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.</p> <p>Network Controller HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM</p> <p>Storage Controller HP Smart Array P220i Controller with 512MB FBWC RAID 0,1</p> <p>Hard Drive None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives</p> <p>Internal Storage SAS: 2.0TB; SATA: 2.0TB; SAS SSD: 1.6TB</p> <p>Optical Drive Bay None</p> <p>Expansion Slots 2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.</p> <p>Management HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control</p> <p>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</p> <p>Warranty Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.</p>
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HP ProLiant BL460c Gen8 E5-2620 1P 16GB-R P220i SFF Server 666161-B21	<p>Processor(s) (1) Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/7.2GT-s QPI/95W, DDR3-1333, HT, Turbo2- 3/3/4/4/5/5)</p> <p>Cache Memory 15MB (1x15MB) Level 3 cache</p> <p>Memory 16GB (4x 4GB) PC3L-10600R (DDR3-1333) Registered DIMMs at 1.35V NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.</p> <p>Network Controller HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM</p> <p>Storage Controller Smart Array P220i Controller with 512MB FBWC RAID 0,1</p> <p>Hard Drive None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives</p> <p>Internal Storage SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD: 1.6TB</p> <p>Optical Drive Bay None</p> <p>Expansion Slots 2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.</p>
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Models

Management	HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
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
Warranty	Server warranty includes 3-year3-year Parts, 3-year Labor, 3-year on-site support.

HP ProLiant BL460c Gen8 E5-2609 1P 16GB-R P220i SFF Server 666162-B21	Processor(s)	(1) Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/6.4GT-s QPI/80W)
	Cache Memory	10MB (1x10MB) Level 3 cache
	Memory	16GB (4x 4GB) PC3L-10600R (DDR3-1333) Registered DIMMs at 1.35V NOTE: Total of 16 DIMM slots. Only eight (8) usable with single processor.
	Network Controller	HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM
	Storage Controller	HP Smart Array P220i Controller with 512MB FBWC RAID 0,1
	Hard Drive	None ship standard Supports up to two (2) HP hot-plug SFF SAS/SATA/SDD drives
	Internal Storage	SAS: 2.4TB; SATA: 2.0TB; SAS SSD: 1.6TB; SATA SSD: 1.6TB
	Optical Drive Bay	None
	Expansion Slots	2 standard - Slot 1 supports Type A mezzanine Cards. Slot 2 supports Type A and Type B mezzanine cards.
	Management	HP iLO Management Engine (standard) Optional: HP iLO Scale-out or HP Insight Control
	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
	Warranty	Server warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model (configure-to-order or CTO server). 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: Configure-to-order server blades must start with a CTO Blade Server.

NOTE: FIO indicates that this option is only available as a factory installable option.

NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.

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

Models	HP ProLiant BL460c Gen8 E5-v2 10Gb/20Gb FlexibleLOM Configure-to-order Blade Server	735151-B21
	Configurable Models ship with:	
	One (1) FlexibleLOM connector providing a choice for one (1) of the supported FlexibleLOMs (see Step 2)	
	Two (2) HP small form factor hot-plug SAS/SATA/SSD hard drive bays	
	Two (2) x16 PCIe I/O expansion slots (one Type A, one Type A/B)	
	One (1) integrated USB connector and one (1) MicroSDHC connector	
	One (1) TPM connector	
	HP iLO Management Engine (standard)	
	HP ProLiant BL460c Gen8 10Gb/20Gb FlexibleLOM Configure-to-order Blade Server	641016-B21
	Configurable Models ship with:	
	One (1) FlexibleLOM connector providing a choice for one (1) of the supported FlexibleLOMs (see Step 2)	
	One (1) HP Smart Array P220i Controller with 512MB FBWC and RAID 0 and 1 support	
	Two (2) HP small form factor hot-plug SAS/SATA/SSD hard drive bays	
	Two (2) x16 PCIe I/O expansion slots (one Type A, one Type A/B)	
	One (1) integrated USB connector and one (1) MicroSDHC connector	
	One (1) TPM connector	
	HP iLO Management Engine (standard)	
	NOTE: The HP ProLiant BL460c Gen8 10Gb FlexibleLOM Configure-to-order Blade Server (641016-B21) cannot be configured the new 1866MHz HP Smart Memory or the new 1600MHz Low Voltage (1.35v) HP Smart Memory.	
	NOTE: The HP Smart Array P220i Controller FIO Kit (690164-B21) comes included with the HP ProLiant BL460c Gen8 10Gb FlexibleLOM Configure-to-order Blade Server (641016-B21). However, when choosing the HP ProLiant BL460c Gen8 E5-v2 10Gb FlexibleLOM Configure-to-order Blade Server (735151-B21), the HP Smart Array P220i Controller FIO Kit (690164-B21) must be added separately as part of the Server Blade Configuration Process.	

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

HP Processors	NOTE: All configure-to-order processor kits (i.e. xxxxxx-L21) contain one (1) processor.	
	NOTE: If two processors are desired, select one xxxxxx-L21 here in Step 2 and one xxxxxx-B21 in Step 4.	
	E5-2600 v2 series Processors	
	HP BL460c Gen8 Intel® Xeon® E5-2697v2 (2.7GHz/12-core/30MB/130W) FIO Processor Kit	718045-L21
	HP BL460c Gen8 Intel® Xeon® E5-2695v2 (2.4GHz/12-core/30MB/115W) FIO Processor Kit	718054-L21
	HP BL460c Gen8 Intel® Xeon® E5-2690v2 (3.0GHz/10-core/25MB/130W) FIO Processor Kit	718055-L21

Configuration Information - Factory Integrated Models

HP BL460c Gen8 Intel® Xeon® E5-2680v2 (2.8GHz/10-core/25MB/115W) FIO Processor Kit	718056-L21
HP BL460c Gen8 Intel® Xeon® E5-2670v2 (2.5GHz/10-core/25MB/115W) FIO Processor Kit	718057-L21
HP BL460c Gen8 Intel® Xeon® E5-2667v2 (3.3GHz/8-core/25MB/130W) FIO Processor Kit	718366-L21
HP BL460c Gen8 Intel® Xeon® E5-2660v2 (2.2GHz/10-core/25MB/95W) FIO Processor Kit	718058-L21
HP BL460c Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) FIO Processor Kit	718358-L21
HP BL460c Gen8 Intel® Xeon® E5-2650Lv2 (1.7GHz/10-core/25MB/70W) FIO Processor Kit	718364-L21
HP BL460c Gen8 Intel® Xeon® E5-2643v2 (3.5GHz/6-core/25MB/130W) FIO Processor Kit	718367-L21
HP BL460c Gen8 Intel® Xeon® E5-2640v2 (2.0GHz/8-core/20MB/95W) FIO Processor Kit	718359-L21
HP BL460c Gen8 Intel® Xeon® E5-2637v2 (3.5GHz/4-core/15MB/130W) FIO Processor Kit	718368-L21
HP BL460c Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) FIO Processor Kit	718360-L21
HP BL460c Gen8 Intel® Xeon® E5-2630Lv2 (2.4GHz/6-core/15MB/60W) FIO Processor Kit	718365-L21
HP BL460c Gen8 Intel® Xeon® E5-2620v2 (2.1GHz/6-core/15MB/80W) FIO Processor Kit	718361-L21
HP BL460c Gen8 Intel® Xeon® E5-2609v2 (2.5GHz/4-core/10MB/80W) FIO Processor Kit	718362-L21
HP BL460c Gen8 Intel® Xeon® E5-2603v2 (1.8GHz/4-core/10MB/80W) FIO Processor Kit	718363-L21

E5-2600 series Processors

HP BL460c Gen8 Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/135W) FIO Processor Kit	662076-L21
HP BL460c Gen8 Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/130W) FIO Processor Kit	662063-L21
HP BL460c Gen8 Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/115W) FIO Processor Kit	662064-L21
HP BL460c Gen8 Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/130W) FIO Processor Kit	667804-L21
HP BL460c Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) FIO Processor Kit	667803-L21
HP BL460c Gen8 Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/95W) FIO Processor Kit	662065-L21
HP BL460c Gen8 Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/95W) FIO Processor Kit	662066-L21
HP BL460c Gen8 Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/70W) FIO Processor Kit	662078-L21
HP BL460c Gen8 Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/130W) FIO Processor Kit	662072-L21
HP BL460c Gen8 Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/95W) FIO Processor Kit	662067-L21
HP BL460c Gen8 Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/80W) FIO Processor Kit	662077-L21
HP BL460c Gen8 Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/95W) FIO Processor Kit	662068-L21
HP BL460c Gen8 Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/60W) FIO Processor Kit	662079-L21
HP BL460c Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) FIO Processor Kit	662069-L21
HP BL460c Gen8 Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/80W) FIO Processor Kit	662070-L21
HP BL460c Gen8 Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/80W) FIO Processor Kit	667805-L21

NOTE: The Intel Xeon E5-2600 Processor Family cannot be configured with the new 1866MHz HP Smart Memory or the new 1600MHz Low Voltage (1.35v) HP Smart Memory.

Configuration Information - Factory Integrated Models

NOTE: DIMM slots 4 and 5 are not accessible when either the E5-2690, the E5-2643, the E5-2643 v2, the E5-2637 v2, or the E5-2667 v2 is used. In a 2 processor configuration, there are twelve (12) total available DIMM slots.

NOTE: For the maximum supported memory speeds for each processor listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

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 8, 7, 6, 5, 4, 3, 2 or 1 core(s) 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: Up to 2 processors supported. Mixing different processor models is not supported.

NOTE: For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, and x = L for low power SKUs.

NOTE: The BL460c Gen8 supports one or two processors.

NOTE: The BL460c Gen8 includes two I/O mezzanine expansion slots. A processor must be installed in processor slot 1 for access to the first mezzanine expansion slot (expansion slot 1). A processor must be installed in processor slot 2 for access to the second mezzanine expansion slot (expansion slot 2).

NOTE: All processors within the server must be identical.

NOTE: All processors support Intel® Hyper-Threading and Intel® Turbo Boost Technologies except the E5-2603 and E5-2609.

NOTE: The letter "L" following the model number indicates denotes lower wattage.

NOTE: The processor model as well as the memory configuration determines the maximum speed memory can operate. Please see the see the "Memory" section later in this document.

NOTE: The Intel Xeon E5-2620 processor does not support DIMMs at 1.35V. Using the HP RBSU, 1.35V DIMMs can be changed to operate at 1.5V.

HP Memory

NOTE: The HP ProLiant BL460c Gen8 10Gb FlexibleLOM Configure-to-order Blade Server (641016-B21) cannot be configured the new 1866MHz HP Smart Memory or the new 1600MHz Low Voltage (1.35v) HP Smart Memory.

NOTE: HP memory from previous generation servers are not qualified or warranted with this HP ProLiant BL460c Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html

NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.

NOTE: A minimum of one DIMM is required per server.

NOTE: For additional memory rules and guidelines, see the "Memory" section later in this document.

NOTE: The internal USB 2.0 Port is not available when the HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage FIO Memory Kits (700404-B21) are used.

HP SmartMemory

Registered DIMMs (RDIMMs) - E5-2600 v2 series Processors

HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713981-B21
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HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory	708637-B21
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Configuration Information - Factory Integrated Models

Kit	
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21
HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	761501-B21
Registered DIMMs (RDIMMs) - E5-2600 series Processors	
HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	690802-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21
HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	761501-B21
Unbuffered with ECC DIMMs (UDIMMs) - E5-2600 v2 series Processors	
HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713977-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708633-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713979-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708635-B21
Unbuffered with ECC DIMMs (UDIMMs) - E5-2600 series Processors	
HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low	647909-B21

Configuration Information - Factory Integrated Models

Voltage Memory Kit

Load Reduced DIMMs (LRDIMMs) - E5-2600 v2 series Processors

HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit 708643-B21

Load Reduced DIMMs (LRDIMMs) - E5-2600 series Processors

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit 647903-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: Depending on the memory configuration and processor model, 1600MHz and 1333MHz memory may operate at a lower speed. Please see the "Memory" section later in this document and the Online Memory Configuration Tool for details at: www.hp.com/go/ddr3memory-configurator.

NOTE: For additional memory rules and guidelines, see the "Memory" section later in this document.

NOTE: For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient

NOTE: PC3L is a low voltage memory.

HP Networking

FlexibleLOM Adapters

NOTE: The server requires one (1) FlexibleLOM that is installed in the FlexibleLOM connectors. All FlexibleLOMs are dual port: One port is routed to interconnect module bay 1 and the other to bay 2.

10/20Gb FlexibleLOM Adapters

HP FlexFabric 20Gb 2-port 630FLB FIO Adapter 700066-B21

HP Ethernet 10Gb 2-port 560FLB FIO Adapter 684214-B21

HP FlexFabric 10Gb 2-port 554FLB FIO Adapter 684212-B21

HP FlexFabric 10Gb 2-port 534FLB FIO Adapter 700742-B21

HP Flex-10 10Gb 2-port 530FLB FIO Adapter 684211-B21

HP Ethernet 10Gb 2-port 570FLB Adapter 718939-B21

HP Ethernet 10Gb 2-port 570FLB FIO Adapter 718940-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs

Step 3: Choose Additional Factory Integration Options

HP Insight Software HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License C6N36A

NOTE: The HP Smart Array P220i Controller FIO Kit (690164-B21) comes included with the HP ProLiant BL460c Gen8 10Gb FlexibleLOM Configure-to-order Blade Server (641016-B21). However when choosing the HP ProLiant BL460c Gen8 E5-v2 10Gb FlexibleLOM Configure-to-order Blade Server (735151-B21), the HP Smart Array P220i Controller FIO Kit (690164-B21) must be added separately as part of the Server Blade Configuration Process.

Converged Infrastructure Management Software **HP OneView with iLO Advanced - Server hardware required on same purchase order**

HP OneView incl 3yr 24x7 Supp Bundle 1 Svr E-LTU E5Y43AAE

HP OneView for Blade Server incl 3yr 24x7 Supp FIO Bundle Physical 1 Svr Lic F6Q89A

HP OneView for Blade Server incl 3yr 24x7 Supp FIO Bundle 1 Svr E-LTU F6Q89AAE

HP Storage Controllers HP Smart Array P220i Controller FIO Kit 690164-B21

Configuration Information - Factory Integrated Models

HP Smart Array P230i/512 6Gb FIO SAS Controller

735062-B21

NOTE: When ordering the HP ProLiant BL460c Gen8 E5v2 10Gb FlexibleLOM Configure-to-order Blade Server (PN 735151-B21) please choose the HP Smart Array P220i/512 FIO Controller (PN 690164-B21) or the HP Smart Array P230i/512 6Gb FIO Controller (PN 735062-B21). When ordering the HP ProLiant BL460c Gen8 10Gb FlexibleLOM Configure-to-order Blade Server (PN 641016-B21) the HP Smart Array P220i FIO Controller (PN 690164-B21) ships standard.

HP Storage Blades

HP D2220sb Configure-to-order Storage Blade

QW918A

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, mezzanine options and power subsystem options; please see the Core Options and Additional sections below; or the following:

- HP BladeSystem c3000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html
NOTE: The c3000 HP c-Class enclosures have full backwards and forwards compatibility, existing server blades are supported in the new enclosures and any future server blades will be supported in the existing enclosures.
- HP BladeSystem c7000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html
NOTE: The c7000 HP c-Class enclosures have full backwards and forwards compatibility, existing server blades are supported in the new enclosures and any future server blades will be supported in the existing enclosures.
- HP BladeSystem c-Class Interconnect and Mezzanine Components:
<http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html> and
<http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html>

NOTE: For optimal cooling and system performance the BL460c Gen8 Server Blade requires the c7000 enclosure to be configured with 10 fans and the c3000 enclosure to be configured with 6 fans.

Core Options

HP Networking

NOTE: Each 10/20 Gigabit Ethernet adapter requires a minimum of 2GB of server memory.

NOTE: A 20 Gigabit Ethernet adapter supports linking at 1Gbps, 10Gbps, or 20Gbps when connected to an interconnect module with 20Gb Ethernet downlinks.

NOTE: A 10/20 Gigabit Ethernet adapter supports linking at only 1Gbps when connected to an interconnect module with 1Gb Ethernet downlinks.

NOTE: The 10/20 Gigabit Ethernet adapters on each server blade connect to a 10/20Gb interconnect in bays 3-6 (HP BladeSystem c7000 Enclosure) or bays 2-4 (HP BladeSystem c3000 Enclosure).

10/20Gb Ethernet Mezzanines

HP FlexFabric 20Gb 2-port 630M Adapter 700076-B21

HP Ethernet 10Gb 2-port 570M Adapter 718935-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14478_div/14478_div.html.

HP Ethernet 10Gb 2-port 560M Adapter 665246-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14478_div/14478_div.html.

HP Flex-10 10Gb 2-port 530M Adapter 631884-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14217_div/14217_div.html.

HP FlexFabric 10Gb 2-port 534M Adapter 700748-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14619_div/14619_div.html.

HP Flex-10 10Gb 2-port 552M Adapter 674764-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14218_div/14218_div.html.

HP FlexFabric 10Gb 2-port 554M Adapter 647590-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14221_div/14221_div.html.

1 Gigabit Ethernet Mezzanines

HP Ethernet 1Gb 4-port 366M Adapter 615729-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14335_div/14335_div.html.

FlexibleLOM Adapters

NOTE: The server supports one (1) FlexibleLOM that is installed in the FlexibleLOM connectors and is already included in the pre-configured models. However, it must be added in Step 2 for Configure-to-Order Models. The FlexibleLOM options below are used to change these original FlexibleLOMs.

10/20Gb FlexibleLOM Adapters

HP FlexFabric 20Gb 2-port 630FLB Adapter 700065-B21

HP Flex-10 10Gb 2-port 530FLB Adapter 656590-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14216_div/14216_div.html.

HP FlexFabric 10Gb 2-port 534FLB Adapter 700741-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14617_div/14617_div.html.

HP FlexFabric 10Gb 2-port 554FLB Adapter 647586-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14219_div/14219_div.html.

HP Ethernet 10Gb 2-port 560FLB Adapter 655639-B21

Core Options

NOTE: Please see QuickSpecs for technical specifications and additional information at http://h18000.www1.hp.com/products/quickspecs/14331_div/14331_div.html

1Gb FlexibleLOM Adapters

HP Ethernet 1Gb 2-port 361FLB Adapter 652500-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14333_div/14333_div.html

HP Infiniband Mezzanine Adapters

NOTE: When an InfiniBand adapter is installed in mezzanine slot 1, only one port is active (regardless of operating mode). When installed in any other mezzanine slot, both ports are active.

HP Infiniband QDR/Ethernet 10Gb 2-port 544M Adapter 644160-B21

NOTE: The QDR InfiniBand adapter may be installed in any mezzanine slot of the server.

HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544M Adapter 644161-B22

NOTE: The FDR InfiniBand adapter must be installed in mezzanine slot 1 for FDR mode and may be installed in any mezzanine slot if operated in any other mode.

HP InfiniBand FDR 2-port 545M Adapter 702213-B21

NOTE: InfiniBand QDR and FDR speeds are only supported on the HP BladeSystem c7000 Enclosure. For additional information, please see the HP BladeSystem c7000 Enclosure and InfiniBand QuickSpecs at:

http://h18004.www1.hp.com/products/quickspecs/12586_div/12586_div.html

http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html

HP Fibre Channel

HP LPe1605 16Gb Fibre Channel HBA for BladeSystem c-Class 718203-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at http://h18000.www1.hp.com/products/quickspecs/14742_div/14742_div.html

HP LPe1205A 8Gb Fibre Channel Host Bus Adapter for BladeSystem c-Class 659818-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at http://h18000.www1.hp.com/products/quickspecs/14338_div/14338_div.html

HP QMH2672 16Gb Fibre Channel Host Bus Adapter 710608-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at http://h18000.www1.hp.com/products/quickspecs/14622_div/14622_div.html

HP QMH2572 8Gb Fibre Channel Host Bus Adapter for BladeSystem c-Class 651281-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at http://h18000.www1.hp.com/products/quickspecs/14230_div/14230_div.html

HP Processors

E5-2600 v2 series Processors

HP BL460c Gen8 Intel® Xeon® E5-2697v2 (2.7GHz/12-core/30MB/130W) Processor Kit 718045-B21

HP BL460c Gen8 Intel® Xeon® E5-2695v2 (2.4GHz/12-core/30MB/115W) Processor Kit 718054-B21

HP BL460c Gen8 Intel® Xeon® E5-2690v2 (3.0GHz/10-core/25MB/130W) Processor Kit 718055-B21

HP BL460c Gen8 Intel® Xeon® E5-2680v2 (2.8GHz/10-core/25MB/115W) Processor Kit 718056-B21

HP BL460c Gen8 Intel® Xeon® E5-2670v2 (2.5GHz/10-core/25MB/115W) Processor Kit 718057-B21

HP BL460c Gen8 Intel® Xeon® E5-2667v2 (3.3GHz/8-core/25MB/130W) Processor Kit 718366-B21

Core Options

HP BL460c Gen8 Intel® Xeon® E5-2660v2 (2.2GHz/10-core/25MB/95W) Processor Kit	718058-B21
HP BL460c Gen8 Intel® Xeon® E5-2650v2 (2.6GHz/8-core/20MB/95W) Processor Kit	718358-B21
HP BL460c Gen8 Intel® Xeon® E5-2650Lv2 (1.7GHz/10-core/25MB/70W) Processor Kit	718364-B21
HP BL460c Gen8 Intel® Xeon® E5-2643v2 (3.5GHz/6-core/25MB/130W) Processor Kit	718367-B21
HP BL460c Gen8 Intel® Xeon® E5-2640v2 (2.0GHz/8-core/20MB/95W) Processor Kit	718359-B21
HP BL460c Gen8 Intel® Xeon® E5-2637v2 (3.5GHz/4-core/15MB/130W) Processor Kit	718368-B21
HP BL460c Gen8 Intel® Xeon® E5-2630v2 (2.6GHz/6-core/15MB/80W) Processor Kit	718360-B21
HP BL460c Gen8 Intel® Xeon® E5-2630Lv2 (2.4GHz/6-core/15MB/60W) Processor Kit	718365-B21
HP BL460c Gen8 Intel® Xeon® E5-2620v2 (2.1GHz/6-core/15MB/80W) Processor Kit	718361-B21
HP BL460c Gen8 Intel® Xeon® E5-2609v2 (2.5GHz/4-core/10MB/80W) Processor Kit	718362-B21
HP BL460c Gen8 Intel® Xeon® E5-2603v2 (1.8GHz/4-core/10MB/80W) Processor Kit	718363-B21

E5-2600 series Processors

HP BL460c Gen8 Intel® Xeon® E5-2690 (2.9GHz/8-core/20MB/135W) Processor Kit	662076-B21
HP BL460c Gen8 Intel® Xeon® E5-2680 (2.7GHz/8-core/20MB/130W) Processor Kit	662063-B21
HP BL460c Gen8 Intel® Xeon® E5-2670 (2.6GHz/8-core/20MB/115W) Processor Kit	662064-B21
HP BL460c Gen8 Intel® Xeon® E5-2667 (2.9GHz/6-core/15MB/130W) Processor Kit	667804-B21
HP BL460c Gen8 Intel® Xeon® E5-2665 (2.4GHz/8-core/20MB/115W) Processor Kit	667803-B21
HP BL460c Gen8 Intel® Xeon® E5-2660 (2.2GHz/8-core/20MB/95W) Processor Kit	662065-B21
HP BL460c Gen8 Intel® Xeon® E5-2650 (2.0GHz/8-core/20MB/95W) Processor Kit	662066-B21
HP BL460c Gen8 Intel® Xeon® E5-2650L (1.8GHz/8-core/20MB/70W) Processor Kit	662078-B21
HP BL460c Gen8 Intel® Xeon® E5-2643 (3.3GHz/4-core/10MB/130W) Processor Kit	662072-B21
HP BL460c Gen8 Intel® Xeon® E5-2640 (2.5GHz/6-core/15MB/95W) Processor Kit	662067-B21
HP BL460c Gen8 Intel® Xeon® E5-2637 (3.0GHz/2-core/5MB/80W) Processor Kit	662077-B21
HP BL460c Gen8 Intel® Xeon® E5-2630 (2.3GHz/6-core/15MB/95W) Processor Kit	662068-B21
HP BL460c Gen8 Intel® Xeon® E5-2630L (2.0GHz/6-core/15MB/60W) Processor Kit	662079-B21
HP BL460c Gen8 Intel® Xeon® E5-2620 (2.0GHz/6-core/15MB/95W) Processor Kit	662069-B21
HP BL460c Gen8 Intel® Xeon® E5-2609 (2.4GHz/4-core/10MB/80W) Processor Kit	662070-B21
HP BL460c Gen8 Intel® Xeon® E5-2603 (1.8GHz/4-core/10MB/80W) Processor Kit	667805-B21

NOTE: The Intel Xeon E5-2600 Processor Family cannot be configured with the new 1866MHz HP Smart Memory or the new 1600MHz Low Voltage (1.35v) HP Smart Memory.

NOTE: DIMM slots 4 and 5 are not accessible when either the E5-2690, the E5-2643, the E5-2643 v2, the E5-2637 v2, or the E5-2667 v2 is used. In a 2 processor configuration, there are twelve (12) total available DIMM slots

NOTE: For the maximum supported memory speeds for each processor listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

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 8, 7, 6, 5, 4, 3, 2 or 1 core(s) 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.

Core Options

NOTE: Up to 2 processors supported. Mixing different processor models is not supported.

NOTE: For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, and x = L for low power SKUs.

NOTE: The BL460c Gen8 supports one or two processors.

NOTE: The BL460c Gen8 includes two I/O mezzanine expansion slots. A processor must be installed in processor slot 1 for access to the first mezzanine expansion slot (expansion slot 1). A processor must be installed in processor slot 2 for access to the second mezzanine expansion slot (expansion slot 2).

NOTE: All processors within the server must be identical.

NOTE: All processors support Intel® Hyper-Threading and Intel® Turbo Boost Technologies except the E5-2603 and E5-2609.

NOTE: The letter "L" following the model number indicates denotes lower wattage.

NOTE: The processor model as well as the memory configuration determines the maximum speed memory can operate. Please see the see the "Memory" section later in this document.

NOTE: The Intel Xeon E5-2620 processor does not support DIMMs at 1.35V. Using the HP RBSU, 1.35V DIMMs can be changed to operate at 1.5V.

HP Memory

NOTE: The HP ProLiant BL460c Gen8 10Gb FlexibleLOM Configure-to-order Blade Server (641016-B21) cannot be configured the new 1866MHz HP Smart Memory or the new 1600MHz Low Voltage (1.35v) HP Smart Memory.

NOTE: HP memory from previous generation servers are not qualified or warranted with this HP ProLiant BL460c Gen8 Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html

NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.

NOTE: A minimum of one DIMM is required per server.

NOTE: For additional memory rules and guidelines, see the "Memory" section later in this document.

HP SmartMemory

Registered DIMMs (RDIMMs)

Registered DIMMs (RDIMMs) - E5-2600 v2 series Processors

HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713981-B21
HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708637-B21
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21
HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	761501-B21

Core Options

Registered DIMMs (RDIMMs) - E5-2600 series Processors

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	690802-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21
HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	761501-B21

Unbuffered with ECC DIMMs (UDIMMs) - E5-2600 v2 series Processors

HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713977-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708633-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713979-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708635-B21

Unbuffered with ECC DIMMs (UDIMMs) - E5-2600 series Processors

HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21

Load Reduced DIMMs (LRDIMMs) - E5-2600 v2 series Processors

HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit	708643-B21
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Load Reduced DIMMs (LRDIMMs) - E5-2600 series Processors

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit	647903-B21
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NOTE: Depending on the memory configuration and processor model, 1600MHz and 1333MHz memory may operate at a lower speed. Please see the "Memory" section later in this document and the Online Memory Configuration Tool for details at www.hp.com/go/ddr3memory-configurator.

Core Options

HP Hard Drives

NOTE: The ProLiant BL460c Gen8 server includes the new HP hot-plug small form factor (SFF) SmartDrive carrier for enhanced management and reduced maintenance errors. HP drives from previous generation servers are not compatible with the BL460c Gen8 drive bays.

NOTE: The mixing of standard SAS drives with SAS SSD is supported within the server, but limits the RAID configuration to two separate RAID 0 volumes. Mixing of other drives types is not supported.

NOTE: HP hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

NOTE: The hard drive options are not required when configuring a drive-less model.

NOTE: 12G SAS hard drives will only operate at 6G speeds in a ProLiant BL460c Gen8

6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives

HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive 655710-B21

HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive 655708-B21

NOTE: Please see the QuickSpecs for technical specifications and additional information at

http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html.

SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives

HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive 718162-B21

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652589-B21

HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652583-B21

HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652572-B21

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652564-B21

HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652611-B21

HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 652605-B21

HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 759212-B21

HP 450GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 759210-B21

HP 300GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive 759208-B21

SAS Hot Plug SmartDrive SFF (2.5-inch) Midline Drives

HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive 652749-B21

HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive 652745-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html.

12G SAS High Endurance Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives

HP 800GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive 741159-B21

NOTE: This drive supports Gen8 servers only.

HP 400GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive 741155-B21

NOTE: This drive supports Gen8 servers only.

HP 200GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive 741151-B21

NOTE: This drive supports Gen8 servers only.

12G SAS Mainstream Endurance Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr 741146-B21

Core Options

Wty Solid State Drive

NOTE: This drive supports Gen8 servers only.

HP 400GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr 741142-B21

Wty Solid State Drive

NOTE: This drive supports Gen8 servers only.

HP 200GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr 741138-B21

Wty Solid State Drive

NOTE: This drive supports Gen8 servers only.

6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives

NOTE: These drives support Gen8 servers only.

HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive 717965-B21

HP 80GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive 734360-B21

6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives

NOTE: These drives support Gen8 servers only.

HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 717973-B21

HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 739898-B21

HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 717971-B21

HP 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 739888-B21

HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 717969-B21

6G SAS MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 400GB 6G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive 690827-B21

6G SAS SLC Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives

HP 200GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive 653078-B21

6G SATA ME Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive 691868-B21

HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive 691866-B21

HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive 691864-B21

HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive 691862-B21

12G SAS VE SFF (2.5-inch) SC EV Solid State Drives

HP 1.6TB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 762263-B21

HP 800GB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive 762261-B21

NOTE: The mixing of standard SAS drives with SAS SSD is supported within the server,

Core Options

but limits the RAID configuration to two separate RAID 0 volumes. Mixing of other drives types is not supported

NOTE: Please see the QuickSpecs for technical specifications and information at <http://www8.hp.com/h20195/v2/GetHTML.aspx?docname=c04154378>

Additional Options

HP Insight software

HP Insight Control

HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License C6N27A

HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License C6N28ABE

HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle FIO Electronic License C6N36ABE

HP Insight Control Server Provisioning Media Kit BD883A

HP Insight Management Media Kit C6N31A

NOTE: HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.

NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.

NOTE: Licenses ship without media. The HP Insight Management Media Kit can be ordered separately, or can be downloaded at <http://www.hp.com/go/insightupdates>

NOTE: For additional license kits, please see the QuickSpecs at: <http://www8.hp.com/h20195/v2/GetHTML.aspx?docname=c04123391>

HP iLO Advanced License

HP Integrated Lights-Out (iLO) Advanced for ProLiant BladeSystem Remote Management

HP iLO Advanced for BladeSystem including 3yr 24x7 Technical Support and Updates E-LTU E-LTU E6U63ABE

HP iLO Advanced Blade 1 Server License with 3yr 24x7 Tech Support and Updates BD502A

HP iLO Advanced for BladeSystem including 1yr 24x7 Technical Support and Updates E-LTU E-LTU E6U60ABE

HP iLO Advanced for BladeSystem including 1yr 24x7 Support Single Server License 512488-B21

HP Integrated Lights-Out (iLO)

HP iLO Scale Out

HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License BD776A

HP Integrated Lights-Out Scale-Out 1yr 24x7 Tech Support and Updates Flex Quantity License BD778A

HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Flex Qty E-LTU BD776AAE

HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU BD778AAE

HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Tracking License BD777A

HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Tracking License BD779A

NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one or three years of 24 x 7 HP Software Technical Support Service.

Additional Options

NOTE: For additional license kits, including electronic delivery options, please see the iLO QuickSpecs at <http://www.hp.com/go/iLO>

NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one or three year of 24 x 7 HP Software Technical Support Service.

NOTE: For additional license kits, please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/14276_div/14276_div.html

Converged Infrastructure Management Software

HP OneView

HP OneView with iLO Advanced

HP OneView incl 3yr 24x7 Supp Phys 1 Svr Lic E5Y34A

HP OneView incl 3yr 24x7 Supp Flex Qty E-LTU E5Y35AAE

HP OneView Media Kit Phys No Lic E5Y37A

HP OneView without iLO Advanced

HP OneView w/o iLO Adv incl 3yr 24x7 Supp Phys 1 Svr Lic E5Y38A

HP OneView w/o iLO Adv inc 3yr 24x7 Supp Flex Qty E-LTU E5Y39AAE

NOTE: For additional license kits please see the QuickSpecs at http://h18004.www1.hp.com/products/quickspecs/14621_div/14621_div.html.

High Performance Clusters

HP Cluster Management Utility

HP Insight Cluster Management Utility 1yr 24x7 Flexible License QL803B

HP Insight Cluster Management Utility 3yr 24x7 Flexible License BD476A

NOTE: These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement.

HP Insight Cluster Management Utility Media BD477A

NOTE: For additional license kits please see the QuickSpecs at http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html.

HP I/O Accelerator Options

HP 1.2TB Multi Level Cell IO Accelerator for BladeSystem c-Class QK763A

HP 785GB Multi Level Cell IO Accelerator for BladeSystem c-Class QK762A

HP 365GB Multi Level Cell IO Accelerator for BladeSystem c-Class QK761A

HP Security

HP Trusted Platform Module Option 488069-B21

NOTE: 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.

Additional Options

HP Storage Controllers	HP Smart Array P721m Controller	
	HP Smart Array P721m/2GB FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	650072-B21
	HP Smart Array P721m/512 FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	655636-B21
	HP Smart Array P731m Controller	
	HP Smart Array P731m/2GB FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	698535-B21
	HP Smart Array P731m/512 FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	698536-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information at http://h18000.www1.hp.com/products/quickspecs/14404_div/14404_div.html . (Smart Array P721M Controller) http://h18000.www1.hp.com/products/quickspecs/14626_div/14626_div.html . (Smart Array P731M Controller)	
HP Secure Encryption	HP Secure Encryption No Media E-LTU per Drive	D8S85AAE
	HP Secure Encryption No Media Flexible License per Drive	D8S84A
	NOTE: HP Secure Encryption is supported on the HP Smart Array P731m and the P230i as an option. HP Secure Encryption licensing is based on the number of physical drives requiring encryption.	
	NOTE: For more information about HP Secure Encryption, go to www.hp.com/go/hpsecureencryption .	
HP InfiniBand Mezzanines	NOTE: When an InfiniBand adapter is installed in mezzanine slot 1, only one port is active (regardless of operating mode). When installed in any other mezzanine slot, both ports are active.	
	NOTE: InfiniBand QDR and FDR speeds are only supported on the HP BladeSystem c7000 Enclosure. For additional information, please see the HP BladeSystem c7000 Enclosure and InfiniBand QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12586_div/12586_div.html http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html	
	HP Infiniband QDR/Ethernet 10Gb 2-port 544M Adapter	644160-B21
	NOTE: The QDR InfiniBand adapter may be installed in any mezzanine slot of the server.	
	HP Infiniband FDR/Ethernet 10Gb/40Gb 2-port 544M Adapter	644161-B22
	NOTE: The FDR InfiniBand adapter must be installed in mezzanine slot 1 for FDR mode and may be installed in any mezzanine slot if operated in any other mode.	
	HP InfiniBand FDR 2-port 545M Adapter	702213-B21
HP Storage Blades	HP D2220sb PCIe and StoreVirtual VSA Bundle	QW914A
	HP D2220sb PCIe w/(12) 900 GB 6G SAS HDD Bundle	QW915A
	HP D2220sb Build-to-order Storage Blade	QW917A
	NOTE: For additional information, please see the QuickSpecs for technical specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/14507_div/14507_div.html	
HP Flash Media Kits for USB Drives	HP Flash Media Kits for USB Drives	
	HP Enterprise Mainstream Flash Media Kits for Memory Cards	
	HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21
	HP 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21

Additional Options

HP 32GB microSD Enterprise Mainstream Flash Media Kit 700139-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13971_div/13971_div.html

HP Care Pack Services

Proactive Care - Collaborative Support plus Proactive services delivered by the on shore/near shore Advanced Solution Center (ASC) and backed by the global delivery organization, end-to-end case ownership from a Technical Solution Specialists and Technical Account Manager who remotely delivers firmware/software revision management, proactive scans and incident trend reports. Recommended for customers running a virtualized infrastructure and/or customers who desire an enhanced call support experience.

HP 3 year 4 hour 24x7 ProLiant BL4xxc Proactive Care Service U3B14E

HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant BL4xxc Proactive Care Service U3B17E

HP 3 year 6 hour Call To Repair 24x7 ProLiant BL4xxc Proactive Care Service U3B20E

HP 3 year 6hr Call To Repair 24x7 with Defective Media Retention ProLiant BL4xxc Proactive Care SVC U3B23E

Proactive Care Personalized Support Environmental Option - to add an onsite Account Support Manager (ASM) to Proactive Care. ASM is an assigned resource who delivers support planning and brings technical expertise and best practices advice for the customer's environment.

HP 3 year ISS ProactiveCare Personalized Support U6W98E

Installation Services - reduce the time required to get your system up and running and help minimize disruptions to your business.

HP Install c-Class Server Blade Service UE493E

HP Hardware Installation during Non Standard Hours c-Class Server Blade Service UG869E

Additional HP Care Pack services can be found at: <http://www.hp.com/go/cpc>

Memory

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

Memory Subsystem Architecture

Each Intel® Xeon® E5-2600 family or Intel® Xeon® E5-2600 family processor socket contains four memory channels that support two DIMMs each for a total of eight (8) DIMM per installed processor or a grand total of sixteen (16) DIMMs for the server. Up to 32GB capacity DIMMs are supported for 512GB of memory (16 DIMM slots x 32GB per DIMM).

Memory Population Rules and Guidelines:

- A minimum of one DIMM is required per processor.
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- DIMM sizes can be mixed in channel. To maximize performance, it is recommended to balance the total memory capacity between all installed processors and to load the channels similarly whenever possible.
- RDIMMs operating at either 1.35V or 1.5V may be mixed in any order, but the system will power them at the higher voltage.
- LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.
- The Intel Xeon E5-2620 processor does not support DIMMs at 1.35V.
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- HP memory from previous generation servers is not compatible with the BL460c Gen8 Server Blade.
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required. For additional information, please see the HP SmartMemory QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html.
- For memory population rules and additional memory guidelines, please see the BL460c Gen8 user guide at
<http://www.hp.com/support>.

BL460c Gen8 Supported Memory Bandwidth on Intel® Xeon® E5-2600 series Processors

DIMM Type	Registered DIMMS (RDIMMs)								Load Reduced (LRDIMMs)	Unbuffered with ECC DIMMs (UDIMMs)					
	Single Rank (1R)		Dual Rank (2R)				Three Rank (3R)	Quad Rank (4R)	Single Rank (1R)	Dual Rank (2R)					
DIMM Rank	Single Rank (1R)		Dual Rank (2R)				Three Rank (3R)	Quad Rank (4R)	Single Rank (1R)	Dual Rank (2R)					
DIMM Capacity	4GB	4GB	8GB	8GB	8GB	16GB	16GB	24GB	32GB	2GB	2GB	4GB	4GB	8GB	8GB
DIMM Native Speed (MHz)	1333	1600	1600	1333	1600	1333	1600	1333	1333	1333	1600	1333	1600	1600	1333
Voltage*	LV	Std	Std	LV	Std	LV	Std	LV	LV	LV	Std	LV	Std	Std	LV

NOTE: *LV= low voltage at 1.35V; Std = standard voltage at 1.5V.

SLOTS THAT CAN BE POPULATED

16 slot servers	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
-----------------	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

MAXIMUM CAPACITY (GB) *

Memory

16 slot servers	64	64	128	128	128	256	256	384	512	32	32	64	64	128	128
-----------------	----	----	-----	-----	-----	-----	-----	-----	-----	----	----	----	----	-----	-----

POPULATED DIMM SPEED (MHz)

1 DIMM Per Channel (1DPC)	1333	1600	1600	1333	1600	1333	1600	n/a	1333**	1333	1600	1333	1600	1600	1333
2 DIMM Per Channel (2DPC)	1333	1600	1600	1333	1600	1333	1600	1333****	1333**	1333***	1600	1333***	1600	1600	1333***

* Maximum capacity will vary based on individual server platform qualification schedule

**LRDIMM enables 3 DIMMs per channel. HP SmartMemory will supports up to 3DPC@DDR3-1066 at 1.35V. Third party memory may only support 3DPC @DDR3-1066 at 1.5V.

***Using HP SmartMemory, UDIMMs at 2DPC are supported up to 1333MHz. Third party UDIMMs at 2DPC may only support up to 1066MHz.

**** Only supported on BL460c Gen8

NOTE: Maximum memory speed is a function of the processor QPI bus speed; see the table below "Memory Speed by Processor Model".

NOTE: The internal USB 2.0 Port is not available when the HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage FIO Memory Kits (700404-B21) are used.

Intel Gen8 Supported Memory Bandwidth on E5-2600v2 series Processor

DIMM Type	Register DIMM							Load Reduced (LRDIMMs)	Unbuffered DIMM			
	Single Rank (1R)		Single Rank (1R)	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)	Three Rank (3R)		Dual Rank (2R)			
DIMM Capacity ->	4GB	4GB	8GB	8GB	16GB	16GB	24GB	32GB	4GB	4GB	8GB	8GB
DIMM Native Speed (MT/s) ->	1600	1866	1600	1866	1600	1866	1333	1866	1600	1866	1600	1866
Voltage	LV	Std	LV	Std	LV	Std	LV	Std	LV	Std	LV	Std

SLOTS THAT CAN BE POPULATED

16 slot servers	16	16	16	16	16	16	16	16	16	16	16	16
64 slot servers#	64	64	64	64	64	64	64	64	64	n/a	n/a	n/a

MAXIMUM CAPACITY (GB) *

16 slot servers	64	64	128	128	256	256	384	512	64	64	128	128
-----------------	----	----	-----	-----	-----	-----	-----	-----	----	----	-----	-----

POPULATED DIMM SPEED (MT/s)

1 DIMM Per	1600	1866	1600	1866	1600	1866	n/a	1866	1600	1866	1600	1866
------------	------	------	------	------	------	------	-----	------	------	------	------	------

Memory

Channel												
2 DIMM Per Channel	1600	1866	1600	1866	1600	1866	1333 ###	1866	1600	1866	1600	1866

Memory speed is a function of the processor QPI bus speed.

* Maximum capacity will vary based on individual server platform qualification schedule

***For HP SmartMemory, UDIMM is supported at 2DPC@DDR3-1333. Third party memory may only support up to 2DPC@DDR3-1066. Only supported on BL460c Gen8.

All configurations on 64 slot server run at DDR3-1066.

RBSU setting required

with IVB processor

Memory Speed by E5-2600 Series Processor Model

Processor Models	Supported Memory Speeds
E5-2680, E5-2670, E5-2667, E5-2665, E5-2660, E5-2650, E5-2650L, E5-2637	1600/1333/1066MHz
E5-2640, E5-2630, E5-2630L, E5-2620	1333/1066MHz
E5-2609, E5-2603	1066MHz

Memory Speed by E5-2600 v2 Series Processor Model

Processor Models	Supported Memory Speeds
E5-2697 v2, E5-2695 v2, E5-2690 v2, E5-2680 v2, E5-2670 v2, E5-2667 v2, E5-2660 v2, E5-2650 v2, E5-2643 v2, E5-2637 v2	1866/1600MHz
E5-2640 v2, E5-2630 v2, E5-2620 v2, E5-2650L v2, E5-2630L v2	1600MHz
E5-2609 v2, E5-2603 v2	1333MHz

Standard and Maximum Memory Capacity (Pre-configured Models) for E5-2600 Series

Pre Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
Intel Xeon E5-2670, E5-2660	64GB (8x 8GB)	192GB (8x 8GB + 8x 16GB)	512GB (16x 32GB)
Intel Xeon E5-2650, E5-2650L	32GB (4x 8GB)	224GB (4x 8GB + 12x 16GB)	512GB (16x 32GB)
Intel Xeon E5-2620, E5-2609	16GB (4x 4GB)	208GB (4x 4GB + 12x 16GB)	512GB (16x 32GB)

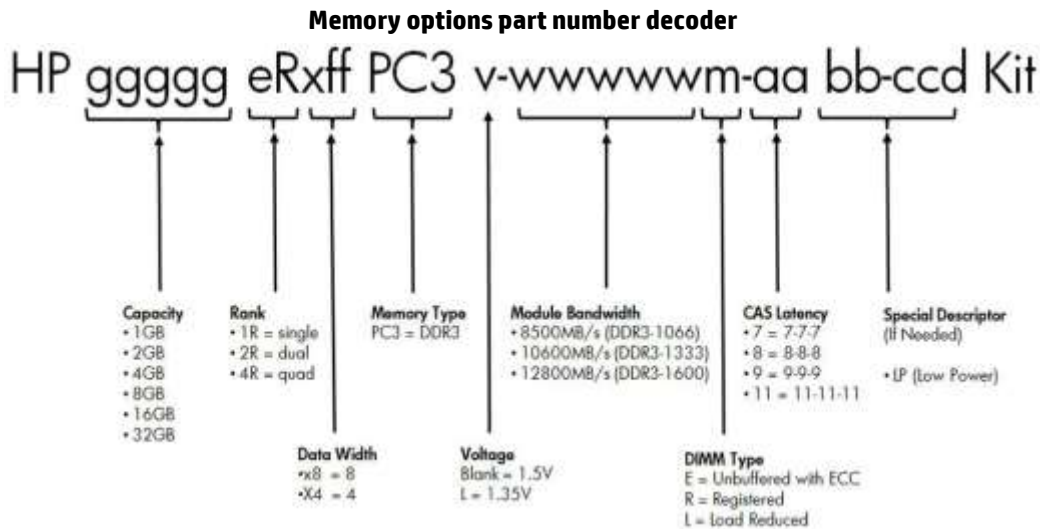
Standard and Maximum Memory Capacity (Pre-configured Models) for E5-2600 v2 Series

Pre Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
Intel Xeon E5-2670 v2, E5-2660 v2	64GB (4x 16GB)	256GB (4x 16GB + 12x 16GB)	512GB (16x 32GB)
Intel Xeon E5-2650 v2, E5-2650L v2, E5-2640 v2	32GB (2x 16GB)	256GB (2x 16GB + 14x 16GB)	512GB (16x 32GB)
Intel Xeon E5-2620 v2, E5-2609 v2	16GB (2x 8GB)	240GB (2x 8GB + 14x 16GB)	512GB (16x 32GB)

NOTE: Capacity references are rounded to the common gigabyte (GB) values.

Memory

- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB



Following are memory options available from HP:

HP Memory

NOTE: The HP ProLiant BL460c Gen8 10Gb FlexibleLOM Configure-to-order Blade Server (641016-B21) cannot be configured the new 1866MHz HP Smart Memory or the new 1600MHz Low Voltage (1.35v) HP Smart Memory.

NOTE: HP memory from previous generation servers are not qualified or warranted with this HP ProLiant BL460c Gen8 Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen8. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html

NOTE: LRDIMM, RDIMM and UDIMMs are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen8 servers support RDIMM, UDIMM and LRDIMM.

HP SmartMemory

Registered DIMMs (RDIMMs)

Registered DIMMs (RDIMMs) - E5-2600 v2 series Processors

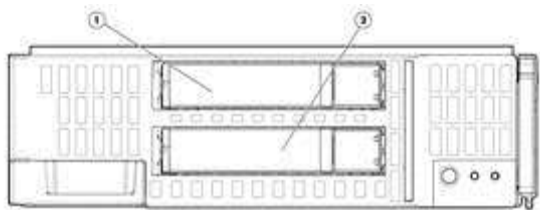
HP 4GB (1x4GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713981-B21
HP 4GB (1x4GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708637-B21
HP 8GB (1x8GB) Single Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	731765-B21
HP 8GB (1x8GB) Single Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	731761-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-12800R (DDR3-1600) Registered CAS-11 Low Voltage Memory Kit	713985-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-14900R (DDR3-1866) Registered CAS-13 Memory Kit	708641-B21

Memory

HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	761501-B21
Registered DIMMs (RDIMMs) - E5-2600 series Processors	
HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647893-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647895-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647897-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647899-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	690802-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647901-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672631-B21
HP 24GB (1x24GB) Three Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	761501-B21
Unbuffered with ECC DIMMs (UDIMMs) - E5-2600 v2 series Processors	
HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713977-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708633-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713979-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-14900E (DDR3-1866) Unbuffered CAS-13 Memory Kit	708635-B21
Unbuffered with ECC DIMMs (UDIMMs) - E5-2600 series Processors	
HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21
Load Reduced DIMMs (LRDIMMs) - E5-2600 v2 series Processors	
HP 32GB (1x32GB) Quad Rank x4 PC3-14900L (DDR3-1866) Load Reduced CAS-13 Memory Kit	708643-B21
Load Reduced DIMMs (LRDIMMs) - E5-2600 series Processors	
HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit	647903-B21

NOTE: Depending on the memory configuration and processor model, 1600MHz and 1333MHz memory may operate at a lower speed. Please see the "Memory" section later in this document and the Online Memory Configuration Tool for details at www.hp.com/go/ddr3memory-configurator.

Storage



1-2 2 x SFF hot-plug SAS, SATA, SAS SDD, and SATA SSD hard drives

Teradici PCoIP® Hardware Accelerator

Teradici PCoIP® Hardware Accelerator (APEX 2800) for HP Gen 8 Server Blades

NOTE: This is a third party product marketed, sold and supported by the solution's vendor. For more information, check vendor's website at: www.teradici.com/hardware-accelerator

NOTE: This solution must be purchased separately and is available from solution vendor's authorized resellers. HP does not resell or factory integrate the solution

NOTE: This solution is supported by the vendor on servers:

- HP ProLiant BL460c Gen8 Server Blade
- HP ProLiant WS460c Gen8 Graphics Expansion Blade

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Technical Specifications

System Unit	Dimensions (H x W x D) (with bezel)	7.11 x 2.18 x 20.37 in (18.07 x 5.54 x 51.76 cm)
	Weight (approximate)	<p>Maximum: all processors, 14.00 lb (6.33 kg) 16 DIMMs, hard drives, mezzanine cards, and two flash cache batteries installed)</p> <p>Minimum: one processor 10.50 lb (4.75 kg) and 2 DIMMs installed</p>
	Power Specifications	<p>For power specifications including input requirements, BTU rating, and power supply output, please see the:</p> <ul style="list-style-type: none"> • HP BladeSystem c3000 Enclosure QuickSpecs at http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html. • HP BladeSystem c7000 Enclosure QuickSpecs at http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html. <p>To review typical system power ratings use the HP Power Advisor which is available via the online tool located at www.hp.com/go/hppoweradvisor.</p> <p>NOTE: For optimal cooling and system performance the BL460c Gen8 Server Blade requires the c7000 enclosure to be configured with 10 fans and the c3000 enclosure to be configured with 6 fans.</p>
	System Inlet Temperature	<p>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 1,000 ft) above sea level to a maximum of 3,050 m (10,000 ft), no direct sustained sunlight.</p> <p>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.</p> <p>System performance may be reduced if operating with a fan fault or above 30°C (86°F).</p> <p>Non-operating -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).</p>
	Relative Humidity (non-condensing)	<p>Operating 10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.</p> <p>Non-operating 5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.</p>
	Altitude	<p>Operating 3,050 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 (1,500 ft/min).</p> <p>Non-operating 9,144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1,500 ft/min).</p>

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Acoustic Noise	For acoustic noise specifications, please see the HP BladeSystem c-Class Enclosures QuickSpecs located at: HP BladeSystem c3000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html HP BladeSystem c7000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html
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HP Smart Array P220i Controller	Disk Drive Interface	6Gb/s SAS (Serial Attached SCSI)
	Server Interface	x4 PCI Express host interface
	Cache Memory	512MB flash backed write cache (FBWC) cache standard
	Logical Drives Supported	64 (with included 512MB cache)
	Host Memory Addressing	64-bit, supporting servers memory space greater than 4GB
	RAID Support	RAID 1 (mirroring) and RAID 0 (striping)
	Other	Upgradeable firmware with recovery ROM Online drive flash (with SAS drives)
HP Smart Array P230i Controller	Disk Drive Interface	6Gb/s SAS (Serial Attached SCSI)
	Server Interface	x4 PCI Express host interface
	Cache Memory	512MB flash backed write cache (FBWC) cache standard
	Logical Drives Supported	64 (with included 512MB cache)
	Host Memory Addressing	64-bit, supporting servers memory space greater than 4GB
	RAID Support	RAID 1 (mirroring) and RAID 0 (striping)
	Other	Upgradeable firmware with recovery ROM Online drive flash (with SAS drives) HP Secure Encryption is supported on P230i as an option
HP FlexFabric 10Gb 2-port 554FLB FlexibleLOM	Type	Integrated dual-port KR 10Gb FlexibleLOM with FlexFabric (Flex-10, FCoE, hardware-based iSCSI, iSCSI boot, TCP/IP offload engine, and autosensing 1Gb/10Gb Ethernet capability)
	Network Processor	Emulex BE3
	Data Transfer Method	x8 PCI Express 2.0
	Network Transfer Rate	Two ports, each at 20Gbps full duplex; 40Gbps aggregate full duplex theoretical bandwidth NOTE: Each port is autosensing 1Gb/10Gb, and can interoperate with 1Gb or 10Gb HP BladeSystem c-Class interconnect components. Both ports will operate at the same speed. NOTE: Each port on the 554FLB adapter transmits from the server at 20Gbps (theoretical) full duplex.
	IEEE Compliance	802.1p, 802.1q, 802.1qau, 802.3ad, 802.3ae, 802.3ap (10GBase-KX4) and 802.3x
	Standard Features	ProLiant Teaming including Network Fault Tolerance, Transmit Load Balancing, and Switch-Assisted Load Balancing 9K Jumbo frames (4K Jumbo frames when in FCoE mode) Microsoft Windows Receive Side Scaling (RSS) Hardware-based accelerated iSCSI iSCSI boot Flex-10 capability Fibre Channel over Ethernet (FCoE) TCP/IP offload engine (stateless TCP/IP)

Technical Specifications

Autosensing 1Gb/10Gb Ethernet

**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.

Summary of Changes

Date	Version History	Action	Description of Change:
17-Sep-2014	From Version 39 to 40	Changed	Updates made to Core Options and Models sections
		Added	Skus added to Networking section: <ul style="list-style-type: none"> 718935-B21
18-Aug-2014	From Version 38 to 39	Changed	Factory Integrated models, Core Options, Additional Options sections were updated
		Added	Skus Added to Hard Drives: <ul style="list-style-type: none"> 759212-B21 759210-B21 759208-B21
		Removed	Obsolete skus deleted: <ul style="list-style-type: none"> 690829-B21 690825-B21 653082-B21
03-Jul-2014	From Version 37 to 38	Added	FlexFabric Adapters were added: <ul style="list-style-type: none"> 700065-B21 700066-B21 700076-B21
10-Jun-2014	From Version 36 to 37	Changed	Standard Features, Configuration Information, Core Options, Additional Options and Memory sections were revised. Duplicated Registered DIMMs were deleted.
11-Apr-2014	From Version 35 to 36	Changed	Storage Controllers and Power Supplies were revised.
02-Apr-2014	From Version 34 to 35	Changed	Memory was revised.
31-Mar-2014	From Version 33 to 34	Changed	Processors and Memory were revised.
03-Mar-2014	From Version 32 to 33	Added	HP 24GB Three Rank x4 PC3L-10600R Registered CAS-9 Low Voltage Memory Kit was added to Memory
18-Feb-2014	From Version 31 to 32	Added	Support for HP Secure Encryption, a data security option for the HP Smart Array P731m and the P230i Controllers
13-Dec-2013	From Version 30 to 31	Added	HP OneView was added to Optional Features Converged Infrastructure Management Software was added HP 1.2TB 6G SAS 10k rpm SFF SC Dual Port Enterprise 3yr Warranty Hard Drive was added to Hard Drives Teradilic PCoIP Hardware Accelerator was added to Storage
01-Nov-2013	From Version 29 to 30	Changed	Updated the Notes in the Processor and Memory sections.
25-Oct-2013	From Version 28 to 29	Changed	Updated the Memory section.
09-Oct-2013	From Version 27 to 28	Changed	Update to the Standard Features section.
07-Oct-2013	From Version 26 to 27	Changed	Changes were made to the following Sections Overview Standard Features Models Configuration Memory Core Options
23-Sep-2013	From Version 25 to 26	Changed	Changes were made to the Models, Configuration Information and Core Options sections.
20-Sep-2013	From Version 24 to 25	Changed	Changes were made to the Notes in Memory sections.
12-Sep-2013	From Version 23 to 24	Changed	Changes were made in the North America and Canada versions.
10-Sep-2013	From Version 22 to 23	Added	E5-2600 v2 series Processors, Memory, Controllers, and NICs were added Canonical Ubuntu was added to Operating Systems and Virtualization Software Support for ProLiant Servers Converged Infrastructure Management Software was added to Additional Options

Summary of Changes

			Smart Array P731m/2G Controller was added to Storage Controllers
27-Aug-2013	From Version 21 to 22	Changed	Changes were made in the North America and Canada versions.
13-May-2013	From Version 20 to 21	Changed	Changes Made to the following Sections Additional Options- HP Storage Blades Section HP USB and SD Options- Memory- HP Memory Storage
25-Mar-2013	From Version 19 to 20	Removed	Optional Features: Removed HP iLO Advanced License for ProLiant section. Additional Options: Removed HP Storage Blades and HP Expansion Blade section.
		Added	Standard Features: Added NOTES to the beginning of the section. Optional Features: Added Storage Software section. Configuration Information - Factory Integrated Models: Added Step 4 to section. Additional Options: Added HP Integrated Lights-Out(iLO) to HP iLO Advanced License section and HP Care Pack Services section and Proactive Care Personalized Support Environmental Option section.
		Changed	Overview: Updated the What's New section Standard Features: Updated Note in the Model section, updated Maximum Internal Storage and Graphics section. Optional Features: Updated HP Insight management software section Service and Support: Updated Standard Care and Parts and Materials sections. Updated complete Models section. Configuration Information - Factory Integrated Models: Updated Notes at beginning of Step 1, Updated notes in HP Memory in Step 2 and Completely updated Step 3 Core Options: Updated Hp Hard Drives section Additional Options: Updated HP Insight software, HP iLO Advanced License, HP USB and SD Options section. Memory: Updated BL460c Gen8 Supported Memory Bandwidth chart, Updated Hard Drives section.
27-Feb-2013	From Version 16 to 17	Changed/ Added/ Removed	Changes made to the following sections: Optional Features: Added HP Proactive Insight experience Core Options: Added new SKUs to the HP Networking section Additional Options: Removed skus from the HP Insight Software section.
04-Dec-2012	From Version 15 to 16	Changed	Changes made throughout the QuickSpec.
24-Oct-2012	From Version 14 to 15	Changed	Changes made to Notes in the Memory sections.
18-Oct-2012	From Version 13 to 14	Changed	Formatting correction was made in the Memory and Storage sections.
28-Sep-2012	From Version 12 to 13	Changed	Changes were made in Standard Features and Additional Options sections.
25-Sep-2012	From Version 11 to 12	Changed	Changes were made in the North America and Canada versions.
24-Sep-2012	From Version 10 to 11	Changed	Changes were made in Standard Features, Optional Features and Technical Specifications sections.
14-Sep-2012	From Version 9 to 10	Changed	Changes made in Configuration Information section only.
13-Aug-2012	From Version 8 to 9	Changed	Changes made in Configuration Information, Core Options, Additional Options, Memory and Storage sections.
06-Jul-2012	From Version 7 to 8	Changed	Change made in the Standard Features section.
15-Jun-2012	From Version 6 to 7	Removed	Removed items in Configuration Information and Core Options.
04-Jun-2012	From Version 5 to 6	Changed	Changes made throughout the QuickSpec.
26-Mar-2012	From Version 3 to 5	Changed	Changes made throughout the QuickSpec.
15-Mar-2012	From Version 1 to 3	Changed	Changes made in the Standard Features, Models and Step 1 of the Configuration Information section.

Summary of Changes

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