QuickSpecs

Overview

HPE ProLiant BL460c Gen10 Server Blade

Scale business performance and securely drive Traditional and Hybrid IT workloads across a converged infrastructure with the new HPE ProLiant BL460c Gen10 server blade for HPE BladeSystem. The HPE ProLiant BL460c Gen10 server blade helps drive new applications, turbo charge performance and transform into an agile, secure foundation, which with HPE OneView, places you on the path to Composable Infrastructure.

HPE ProLiant BL460c Gen10 Server Blade – Front View

1. Serial label pull tab (SUV Connector located behind)
2. Unique identification (UID) LED
3. Health status bar LED
4. Power Button
5. iLO USB connection
6. Quick access panel
7. Front hot-plug drive bays
8. NIC activity LED
9. Server blade release lever

What's New

Hewlett Packard Enterprise

Overview

- More choice with new Intel Xeon Scalable Family of processors – 3100, 4100, 5100, 6100, and 8100 series **up to 150W**
- New options for HPE Smart Array controllers
- Faster DDR4 SmartMemory choices @ 2666 MT/s
- Expanded storage options with hot-plug uFF drives and larger internal M.2 options
- Quick access to iLO maintenance options with front accessible iLO USB connector

Standard Features

Platform Information

This document covers the HPE ProLiant BL460c Gen10 server blade only.

For information on HPE BladeSystems c-Class Enclosures and HPE BladeSystem c-Class Interconnect and Mezzanine Components, please see the following HPE BladeSystem c-Class QuickSpecs:

- HPE BladeSystem c3000 Enclosure QuickSpecs at **https://www.hpe.com/h20195/v2/GetPDF.aspx/c04128340.pdf**
  NOTE: The c3000 HPE 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.
- HPE BladeSystem c7000 Enclosure QuickSpecs at **https://www.hpe.com/h20195/v2/GetPDF.aspx/c04128339.pdf**
  NOTE: The c7000 HPE 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.
- HPE BladeSystem c-Class Interconnect and Mezzanine Components at
  https://www.hpe.com/us/en/integrated-systems/bladesystem.html

NOTE: For optimal cooling and system performance the BL460c Gen10 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 HPE Onboard Administrator and HPE Virtual Connect are required and available via the HPE Service Pack for ProLiant, please see
http://h17007.www1.hpe.com/us/en/enterprise/servers/products/service_pack/spp/index.aspx

Form Factor   HPE ProLiant BL460c Gen10 is a half-height server blade that plugs into the HPE BladeSystem c3000 and c7000 enclosures.

Standard Features
Processors - Up to 2 of the following depending on model.
NOTE: For more information regarding Intel Xeon processors, please see the following **http://www.intel.com/xeon**
NOTE: Intel Xeon Platinum 8160M, Gold 6142M, 6140M, and 6134M support extended memory capacities up to 1.5TB per socket versus 768GB per socket for standard processors. However, maximum memory capacity for the server will be limited by maximum capacity DIMMs available and number of DIMM slots. The BL460c Gen10 will support a maximum memory capacity of 512GB per socket with 64GB DIMMs regardless of processor chosen. This maximum will increase as larger capcity DIMMs are qualified for the server.

Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	QPI	DDR4 MT/s
Platinum Processors						
Platinum 8164 Processor	2.0 GHz	26	35.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8160M Processor	2.1 GHz	24	33.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8160 Processor	2.1 GHz	24	33.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8158 Processor	3.0 GHz	12	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8156 Processor	3.6 GHz	4	16.50 MB	105W	3 @ 10.4 GT/s	2666 MT/s
Platinum 8153 Processor	2.0 GHz	16	22.00 MB	125W	3 @ 10.4 GT/s	2666 MT/s
Gold Processors						
Gold 6152 Processor	2.1 GHz	22	30.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s
Gold 6148 Processor	2.4 GHz	20	27.50 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Gold 6142M Processor	2.6 GHz	16	22.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Gold 6142 Processor	2.6 GHz	16	22.00 MB	150W	3 @ 10.4 GT/s	2666 MT/s

Standard Features

Gold 6140M Processor	2.3 GHz	18	24.75 MB	140W	3 @ 10.4 GT/s	2666 MT/s
Gold 6140 Processor	2.3 GHz	18	24.75 MB	140W	3 @ 10.4 GT/s	2666 MT/s
Gold 6138 Processor	2.0 GHz	20	27.50 MB	125W	3 @ 10.4 GT/s	2666 MT/s
Gold 6136 Processor	3.0 GHz	12	24.75 MB	150W	3 @ 10.4 GT/s	2666 MT/s
Gold 6134M Processor	3.2 GHz	8	24.75 MB	130W	3 @ 10.4 GT/s	2666 MT/s
Gold 6134 Processor	3.2 GHz	8	24.75 MB	130W	3 @ 10.4 GT/s	2666 MT/s
Gold 6132 Processor	2.6 GHz	14	19.25 MB	140W	3 @ 10.4 GT/s	2666 MT/s
Gold 6130 Processor	2.1 GHz	16	22.00 MB	125W	3 @ 10.4 GT/s	2666 MT/s
Gold 6128 Processor	3.4 GHz	6	19.25 MB	115W	3 @ 10.4 GT/s	2666 MT/s
Gold 6126 Processor	2.6 GHz	12	19.25 MB	125W	3 @ 10.4 GT/s	2666 MT/s
Gold 5122 Processor	3.6 GHz	4	16.50 MB	105W	2 @ 10.4 GT/s	2400 MT/s
Gold 5120 Processor	2.2 GHz	14	19.25 MB	105W	2 @ 10.4 GT/s	2400 MT/s
Gold 5118 Processor	2.3 GHz	12	16.50 MB	105W	2 @ 10.4 GT/s	2400 MT/s
Gold 5115 Processor	2.4 GHz	10	13.75 MB	85W	2 @ 10.4 GT/s	2400 MT/s
Silver Processors						
Silver 4116 Processor	2.1 GHz	12	16.50 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Silver 4114 Processor	2.2 GHz	10	13.75 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Silver 4112 Processor	2.6 GHz	4	8.25 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Silver 4110 Processor	2.1 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Silver 4108 Processor	1.8 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2400 MT/s
Bronze 3106 Processor	1.7 GHz	8	11.00 MB	85W	2 @ 9.6 GT/s	2133 MT/s
Bronze 3104 Processor	1.7 GHz	6	11.00 MB	85W	2 @ 9.6 GT/s	2133 MT/s

NOTE: When using processors of 135W or greater, 10 fans are required in the c7000 for optimal performance.

NOTE: Memory per socket is based on the processor maximum supported memory, not the BL460c memory maximum.

NOTE: Platinum – 8100 Series - 2S - 2UPI @ 10.4 GT/s, 6-Channel DDR4 @ 2666 MT/s, 768 GB memory capacity (1.5 TB on select skus), Intel Turbo Boost Technology, Intel Hyper-Threading Technology
Intel AVX-512 (2x 512-bit FMA), 48 lanes PCIe 3.0, advanced RAS.

NOTE: Gold – 5100, 6100 Series - 2S - 2UPI @ 10.4 GT/s, 6-Channel DDR4 @ 2400 MHz (SKU 5122=supports 2666), 768 GB memory capacity (1.5 TB on select skus), Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA) (SKU 5122 supports 2x 512 bit FMA), 48 lanes PCIe 3.0, advanced RAS.

NOTE: Silver – 4100 Series - 2S - 2UPI @ 9.6 GT/s, 6-Channel DDR4 @ 2400 MHz, 768 GB memory capacity, Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA), 48 lanes PCIe 3.0, standard RAS.

NOTE: Bronze – 3100 Series - 2S - 2UPI @ 9.6 GT/s, 6-Channel DDR4 @ 2133 MHz, 768 GB memory capacity, Intel AVX-512(1x 512-bit FMA), 48 lanes PCIe 3.0, standard RAS

Chipset

Intel C621 Chipset

NOTE: For more information regarding Intel chipsets, please see the following:
http://www.intel.com/content/www/us/en/chipsets/chipsets-overview.html

On System Management Chipset

HPE iLO 5 ASIC

NOTE: Read and learn more in the **iLO QuickSpecs**.

Memory

One of the following depending on Model

Type   HPE SmartMemory
                                       DDR4 Load Reduced (LRDIMM), or Registered (RDIMM)

Standard Features

Standard (Pre-configured Models)	128GB (4 x 32GB) DDR4 2666MT/s LDIMMs at 1.2V 64GB (4x 16GB) DDR4 2666MT/s RDIMMs at 1.2V 16GB (2 x 8GB) DDR4 2666MT/s RDIMMs at 1.2V
Maximum (LRDIMM) 1TB	16 x 64GB up to 2666MT/s at 1.2V
Maximum (RDIMM) 512GB	16 x 32GB up to 2666MT/s at 1.2V

NOTE: HPE memory from previous generation servers is not supported with this server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen10. For additional information, please see the HPE SmartMemory QuickSpecs at:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111535
NOTE: LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.
NOTE: Depending on the memory configuration and processor model, the memory speed may run at 2666MT/s, 2400MT/s, 2133MT/s, or 1866MT/s. Please see **Memory Population Table** or the Online Memory Configuration Tool at:
https://h22195.www2.hpe.com/DDR4memoryconfig/Home/SelectServer

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Memory Protection
Advanced ECC
Memory Mirroring
Memory Online Spare Mode (Rank Spare Mode)

Network Controller

One of the following depending on Model

- One (1) 20Gb 2-port FlexFabric FLB, 10Gb 2-port HPE FlexFabric FLB, or 10Gb 2-port Ethernet FLB
  NOTE: Supports FCoE, TCP/IP offload engine, hardware-based accelerated iSCSI, iSCSI boot, and autosensing 10Gb/1Gb Ethernet.
  NOTE: Each port is autosensing the speed, and can interoperate with 1Gb HPE BladeSystem c-Class interconnect components. Both ports will operate at the same speed.
  NOTE: FlexFabric capabilities require the use of an HPE Virtual Connect FlexFabric or Flex10/10D module.
  Fibre Channel over Ethernet (FCoE) is supported with HPE interconnects. Learn more at:
  https://www.hpe.com/us/en/integrated-systems/virtual-connect.html

- One (1) HPE FlexFabric 10Gb 2-port 536FLB FlexibleLOM
- One (1) HPE FlexFabric 10Gb 2-port 560FLB FlexibleLOM
- One (1) HPE FlexFabric 20Gb 2-port 630FLB FlexibleLOM
- One (1) HPE FlexFabric 20Gb 2-port 650FLB FlexibleLOM
  NOTE: FlexibleLOMs are not compatible with c-Class server blades prior to Gen9.

- Standard iLO Network Controller:
  One (1) 10/100 Mbps port for the HPE iLO 5 to Onboard Administrator link. The Onboard Administrator (with 10/100/1000 Mbps) to BladeSystem link is 1Gbps

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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.

Standard Features

> **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:
- Dual-port 20Gb FlexFabric, Dual-port 10Gb FlexFabric, 10GbE options, and quad-port 1Gb Ethernet server adapter mezzanine options for additional network ports.
- Dual-port 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

HPE Server ROM

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

HPE 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.

HPE 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.

The HPE 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 HPE ROM-Based Setup Utility (RBSU).

NOTE: For further information, please refer to the HPE RBSU (ROM based setup utility) user guide:
http://h20564.www2.hpe.com/hpsc/doc/public/display?docId=c00191707

HPE Server UEFI /Legacy ROM

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration while interacting with your server at boot time. HPE ProLiant Gen10 platform defaults to UEFI and can be factory or field configured for Legacy BIOS Boot Mode.

NOTE: The UEFI System Utilities function is analogous to the HPE ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit **http://www.hp.com/ctg/Manual/c04398276.pdf**

UEFI enables numerous new capabilities specific to HPE ProLiant servers such as:
- Secure Boot
- Operating system specific functionality
- Support for > 2.2 TB (using GPT) boot drives
- USB 3.0 Stack
- Embedded UEFI Shell
- Mass Configuration Deployment Tool using HPE RESTful API
- PXE boot support for IPv6 networks
- Boot support for option cards that only support a UEFI option ROM

NOTE: For more information please visit **http://www.hp.com/ctg/Manual/c04398276.pdf**
NOTE: For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.
NOTE: HPE Legacy FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory.

Storage Controller

All BTO Models

One (1) HPE Smart Array P204i-b 12G SAS modular Controller with 1GB Flash-Backed Write Cache (FBWC), or HPE Smart

Standard Features

Array S100i SR Gen10 SW RAID.
NOTE: The HPE Smart Array P204i-b and the HPE Smart Array S100i SR Gen10 SW RAID (chipset SATA) support up to two (2) small form factor (SFF) or 4 ultra form factor (uFF) hot plug drive bays.
NOTE: For NVMe support, please select the NVMe FIO setting (873373-B21) available on CTO models only.

Maximum Internal Storage

One of the following depending on Model

Hot Plug SFF SAS	4.0TB	2 x 2.0TB
Hot Plug SFF SATA	4.0TB	2 x 2.0TB
Hot Plug SFF SAS SSD	7.68TB	2 x 3.84TB
Hot Plug SFF SATA SSD	7.68TB	2 x 3.84TB
Hot Plug uFF SATA SSD	1.32TB	4 x 340GB
Hot Plug SFF NVMe SSD	4.0TB	2 x 2.0TB
M.2 SATA SSD Option Drives	3.84TB	2 x 1.92TB

NOTE: The ProLiant BL460c Gen10 server blade includes the HPE hot plug small form factor (SFF) SmartDrive carrier for enhanced management and reduced maintenance errors. HPE drives from previous generation servers (prior to Gen8) are not compatible with the ProLiant BL460c Gen10 drive bays.

Interfaces

Micro SDHC Slot	One (1) internal Micro Secure Digital High Capacity (Micro SDHC) card slot
USB 3.0 Port	One (1) internal USB 3.0 connector for USB flash media drive keys

NOTE: The above options are intended for integrated hypervisor virtualization environments.

Industry Standard Compliance

ACPI 6.1 Compliant
PCIe 3.0 Compliant
WOL Support
Microsoft® Logo certifications
PXE Support
USB 3.0 Compliant (internal); USB 2.0 Compliant (external ports via SUV)
SMBIOS 3.1
UEFI 2.6
Redfish API

Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server 2012 R2 Standard, Datacenter (Rob Greenberg)
Microsoft Windows Server 2016 Standard, Datacenter Edition,
Microsoft Hyper-V Server 2012, R2, 2016

Red Hat Enterprise Linux 6.9, 7.4 (includes KVM)
SUSE Linux Enterprise Server 12 SP2, SP3 (64-bit) (includes XEN & KVM)

Citrix Xenserver 7.0, 7.1 (primary use for HPE GPU Options)
vSphere 6.5
VMware vSphere 2016 (6.5) U1
CentOS

NOTE: For more information on the HPE Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrices at:
http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/windows.aspx
http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/oracle_linux.aspx

Standard Features

http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/vmware.aspx and our driver download page: **http://h20566.www2.hpe.com/hpsc/swd/public/readIndex?sp4ts.oid=7271227**.

Security Features

UEFI Secure Boot and Secure Start support
Immutable Silicon Root of Trust
Support for Commercial National Security Algorithms (CNSA)
iLO Security Modes including a New iLO Advance Premium Security License
Granular control over iLO interfaces
Tamper-free updates – components digitally signed and verified
Secure Recovery – recover critical firmware to known good state on detection of compromised firmware
TPM (Trusted Platform Module) 1.2 option
TPM (Trusted Platform Module) 2.0 option Bezel Locking Kit

Enclosures

Hewlett Packard Enterprise offers two different c-Class server blade enclosures to meet your individual needs:
- The HPE BladeSystem c7000 rack enclosure is 10U high and holds up to sixteen (16) ProLiant BL460c Gen10 servers plugged vertically.
- The HPE BladeSystem c3000 rack enclosure is 6U high and holds up to eight (8) HPE ProLiant BL460c Gen10 servers plugged horizontally.

Server 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: **https://www.hpe.com/us/en/product-catalog/storage/disk-enclosures/pip.hpe-bladesystem-c7000-enclosures.1844065.html**

Graphics

Integrated Matrox G200eh video controller
- 1600 x 1200 (32 bpp)
- 1920 x 1200 (16 bpp)

HPE iLO Management On System Management Memory
- 16 MB Flash Video Memory
- 256 MB DDR 3 with ECC (112 MB after ECC and video)

HPE Server UEFI / Legacy ROM

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration than the legacy ROM while interacting with your server at boot time. HPE ProLiant Gen10 servers have a UEFI Class 2 implementation and support both UEFI Mode (default) and Legacy BIOS Mode.

NOTE: The UEFI System Utilities tool is analogous to the ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit **http://www.hpe.com/servers/uefi.**

UEFI enables numerous new capabilities specific to HPE ProLiant servers such as:
Secure Boot and Secure Start enable for enhanced security
Operating system specific functionality
Support for > 2.2 TB (using GPT) boot drives
USB 3.0 Stack
Embedded UEFI Shell
Mass Configuration Deployment Tool using iLO RESTful API that is Redfish API Conformant.
PXE boot support for IPv6 networks
Workload Profiles for simple performance optimization

Standard Features

UEFI Boot Mode only:
     TPM 2.0 Support
     NVMe Boot Support
     Platform Trust Technology (PTT) can be enabled.
     iSCSI Software Initiator Support.
     HTTP/HTTPs Boot support as a PXE alternative.
     Boot support for option cards that only support a UEFI option ROM
     NOTE: For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.
     NOTE: Legacy FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory for your
     HPE ProLiant Gen10 Server.

Embedded Management

HPE Integrated Lights-Out (HPE iLO)	Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO. Learn more at **http://www.hpe.com/info/ilo**
UEFI	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at **http://www.hpe.com/servers/uefi**
Intelligent Provisioning	Hassle free server and OS provisioning for one or more servers with Intelligent Provisioning. Learn more at **http://www.hpe.com/servers/intelligentprovisioning**
iLO RESTful API	iLO RESTful API is Redfish API conformantce and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. **http://www.hpe.com/info/restfulapi**

Server Utilities

Active Health System	The HPE Active Health System (AHS) is an essential component of iLO management portfolio that provides continuous, proactive health monitoring of HPE servers. **http://www.hpe.com/servers/ahs**
Active Health System Viewer	Use the Active Health System Viewer, a web-based portal, to easily read AHS logs and speed problem resolution with HPE self-repair recommendations, to learn more visit: **http://www.hpe.com/servers/ahsv**
Smart Update	Keep your servers up to date with the HPE's Smart Update solution by using Smart Update Manager (SUM) to optimize the firmware and driver updates of the Service Pack for ProLiant (SPP). Learn more at **http://www.hpe.com/info/smartupdate**
iLO Amplifier Pack	Designed for large enterprise and service provider environments with hundreds of HPE servers, the iLO Amplifier Pack is a free, downloadable open virtual application (OVA) that delivers the power to discover, inventory and update Gen8, Gen9 and Gen10 HPE servers at unmatched speed and scale. Use with an iLO Advanced License to unlock full capabilities. Learn more at **http://www.hpe.com/servers/iLOamplifierpack**
HPE iLO Mobile Application	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: **http://www.hpe.com/info/ilo/mobileapp**
RESTful Interface Tool	RESTful Interface tool (iLOREST) is a single scripting tool to provision using iLO RESTful API to

Standard Features

discover and deploy servers at scale. Learn more at **http://www.hpe.com/info/resttool**

Scripting Tools

Provision one to many servers using your own scripts to discover and deploy with Scripting Toolkit (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. Learn more at **http://www.hpe.com/servers/stk** or **http://www.hpe.com/servers/powershell**

HPE OneView Standard

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. It can monitor multiple HPE Servers generations. The user interface is similar to the HPE OneView Advanced version, but the software-defined functionality is not available. **http://www.hpe.com/info/oneview**

HPE Systems Insight Manager

Ideal for environments already using HPE SIM, it allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers. Also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates. Learn more at **www.hpe.com/info/hpesim**

Optional Features

Fibre Channel Support

Up to two (2) optional 16Gb Fibre Channel mezzanine HBAs are supported on the HPE ProLiant BL460c Gen10.

Compatible SAN

HPE ProLiant BL460c Gen10 server blades are optimized for HPE MSA, EVA, 3PAR and XP.
HPE ProLiant BL460c Gen10 server blades are compatible with select 3rd party SANs. Please see blade storage page for more details at **https://www.hpe.com/us/en/integrated-systems/bladesystem.html**.

HPE Virtual Connect

HPE Virtual Connect is an interconnect option for c-Class BladeSystem that simplifies server connectivity to data and storage networks, and reduces costs. Unique HPE 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 (FCoE).

HPE OneView's software-defined approach to infrastructure management enables central console to administer network connections and workloads for thousands of servers, see
https://www.hpe.com/us/en/integrated-systems/management-software.html

For more information on Virtual Connect Ethernet, Fibre Channel, Converged Network and management options, see
https://www.hpe.com/us/en/integrated-systems/virtual-connect.html

Server Management

HPE OneView Advanced

HPE OneView brings a new level of automation to infrastructure management by taking a template driven approach to provisioning, updating, and integrating compute, storage, and networking infrastructure. It provides full-featured licenses which can be purchased for managing Gen8 Gen9 and Gen10 servers. **http://www.hpe.com/info/oneview**

HPE Insight Control

NOTE: Insight Control is not supported with Gen10 server blades.

HPE iLO Advanced

HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality **http://www.hpe.com/servers/iloadvanced**

HPE OneView

Powerful converged management of servers, storage, and network for IT service automation and infrastructure simplicity.

HPE iLO Advanced Premium Security Edition

HPE iLO Advanced Premium Security Edition for iLO 5 includes iLO Advanced License plus high-end security modes, unique security capabilities, like Automatic FW recovery; Runtime FW verification, and Secure erase.
http://www.hpe.com/servers/ilopremium

HPE Matrix Operating Environment

The HPE 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. The HPE Matrix OE includes the

Optional Features

automated provisioning, optimization, and recovery management capabilities for HPE CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS).

For more information, visit: **http://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPID**

HPE iLO Scale-Out

HPE iLO Scale-Out is the preferred license built for web hosting, cloud service providers, and high performance computing data centers, managing massive scale out environments. This license offers sophisticated scripting tools that provides remote access through Text Console via SSH, Dynamic power capping, Email-based Alerting and proactive notifications.
http://www.hpe.com/servers/iLO/scale-out

HPE Cluster Platforms

HPE 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://www8.hp.com/us/en/products/servers/scalable-systems/clusterplatform.html

HPE HPC Interconnects

High Performance Computing (HPC) interconnect technologies are available for this server as part of the HPE Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by Hewlett Packard Enterprise when integrated within an HPE cluster.

Get connected to HPE

To get the most from your investment in Hewlett Packard Enterprise servers, get connected to Hewlett Packard Enterprise using our innovative remote support technology which provides system health monitoring, pre-failure alert notification and more.

Expansion Blade
Support

Supports one (1) optional PCI expansion blade
NOTE: D2200sb and D2220sb storage blades are not compatible with BL460c Gen10 server blade.

Factory Express
Portfolio for Servers
and Storage

HPE Factory Express offers configuration, customization, integration and deployment services for Hewlett Packard Enterprise 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. Hewlett Packard Enterprise products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services on your specific server model please contact your sales representative or go to:
http://www8.hp.com/us/en/campaigns/factory-express/server-storage-networking.html

One Config Simple (SCE)

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 Hewlett Packard Enterprise Customer

Optional Features

Business Center or an Authorized Partner for assistance. **https://h22174.www2.hpe.com/SimplifiedConfig/Welcome#**

Recommended Support Services for BL460

Service and Support

Protect your business beyond warranty with HPE Support Services
HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution roadmap. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution.   Finally, operational services provides innovative new approaches like Flexible Capacity and Datacenter Care, to keep your business at peak performance. HPE is ready to bring together all the pieces of the puzzle for you, with an eye on the future, and make the complex simple.

Connect your devices:
Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77%1 reduction in down time, near 100%2 diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to HPE support.
> 1-   IDC 2 – HP CSC reports 2014 – 2015

Learn more about getting connected at **www.hpe.com/services/getconnected**

Proactive Care service levels

HPE Proactive Care* with 24x7 coverage, three year Support Service
HPE Proactive Care gives customers an enhanced call experience. When your products are connected to HPE, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice This Service combines three years proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers.
https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf

HPE Proactive Care Advanced* - 24x7 coverage, three year Support Service
This service helps achieve a higher return on your product investment with personalized support from a local assigned Account Support Manager who will share best practice advice and personalized recommendations designed to help improve availability and performance to increase stability and reduce unplanned downtime. Leverage your system's ability to connect to HPE for pre-failure alerts, automatic call logging and parts dispatch. For business critical incidents, this service offers critical event management to reduce mean time to resolution. This recommendation provides 24x7 coverage with four-hour response for hardware and collaborative support that offers two-hour callback for supported software issues. Collaborative software management is included with independent software vendors unless you have your software support from HPE where we own all cases from start through to resolution.
https://www.hpe.com/h20195/v2/getdocument.aspx?docname=4AA5-3259ENW

NOTE: HPE Proactive Care and HPE Proactive Care Advanced require that the customer connect their devices to make the most of these services and receive all the deliverables.

Parts and Materials
HPE will provide HPE-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.

Recommended Support Services for BL460

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

Other related Services

HPE Installation and Startup Service
Provides for the installation and startup of HPE technology including BladeSystem, C-Class enclosure, HPE ProLiant c-Class and Integrity server blades, storage blades, SAN switch blades, HPE Virtual Connect modules (Ethernet and Fibre Channel), Ethernet network interconnects, and InfiniBand, as well as the installation of one supported operating system type (Windows® or Linux).

HPE Server Hardware Installation
Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.
https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf

HPE Datacenter Care service
HPE Datacenter Care helps improve IT stability and security, increase the value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services "building blocks." You can deploy, operate, and evolve your datacenter wherever you are on your IT journey. With HPE Datacenter Care, you benefit from a personalized relationship with HPE via a single point of accountability for HPE and others' products. For more information, visit
http://www.hpe.com/services/datacentercare

HPE Flexibly Capacity
With Flexible Capacity, you get the speed, scalability, and economics of the public cloud in the privacy of your data center. Gain the advantages of the public cloud—consumption-based payment, rapid scalability without worrying about capacity constraints. Reduce the "heavy lifting" needed to operate a data center. And retain the advantages that IT provides the business (i.e., control, security). Deliver the right user experience, choose the right technology for the business, manage privacy and compliance, and manage the cost of IT. And, you have the option to use the public cloud when needed.

HPE Factory Express for Servers and Storage
HPE Factory Express offers configuration, customization, integration and deployment services for HPE 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. HPE products supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE Apollo, HPE ProLiant Server Blades, HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx3PAR suite, XP, rackable tape libraries and configurable network switches.

HPE Technology Services Support Credits offer flexible services and technical skills to meet your changing IT demands. With a menu of service that is tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

HPE Education Services
Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. **http://www.hpe.com/ww/learn**

Recommended Support Services for BL460

HPE Support Center

The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers. Learn more **http://www.hpe.com/support/hpesc**

HPE'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.

HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.

****NOTE:** HPE Support Center Mobile App is subject to local availability
For more information: **http://www.hpe.com/services**

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: Hewlett Packard Enterprise 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 Hewlett Packard Enterprise offices for availability.

[SKU Number]	863445-B21	863446-B21	863447-B21
Model Name	HPE BL460c Gen10 4108 1P 16GB Svr	HPE BL460c Gen10 5120 2P 64GB Svr	HPE BL460c Gen10 6140 2P 128GB Svr
Processor	Intel Xeon Silver 4108 (8c, 1.8G, 85W)	Intel Xeon Gold 5120 (14C, 2.2G, 105W)	Intel Xeon Gold 6140 (18C, 2.3G, 140W)
Number of Processors	1	2	2
Cache Memory	11MB	19.25MB	24.75MB
Memory (max)	768GB	1.5TB	1.5TB
Network Controller	536FLB	536FLB	650FLB
Storage Controller	HPE Smart Array S100i SR SW RAID (Embedded SATA Software RAID / No Cache)	HPE Smart Array P204b-i (12G SAS, 1GB FBWC)	HPE Smart Array P204b-i (12G SAS, 1GB FBWC)
Hard Drive	Not included	Not included	Not included
Mezzanine Slots	2 x16 PCIe 3.0		
Warranty	3-3-3		

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, Hewlett Packard Enterprise recommends the use of an Hewlett Packard Enterprise 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	HPE ProLiant BL460c Gen10 10Gb/20Gb FlexibleLOM Configure-to-order Blade Server	863442-B21
	HPE ProLiant BL460c Gen10 10Gb/20Gb FlexibleLOM Configure-to-order TAA Blade Server	875938-B21

NOTE: Trade Agreement Act (TAA) and means that these SKUs are manufactured in countries that are part of the global trade act. This provides greater security assurance that these servers come from countries that signed the agreement act. This is particularly important to HPE customers in our federal sector and other verticals that have concerns about the country of origin for our solutions.

Configurable Models ship with:

One (1) FlexibleLOM connector providing a choice for one (1) of the supported 10Gb/20Gb FlexibleLOMs (see Step 2)
Two (2) HPE small form factor hot-plug SAS/SATA/ HDD or 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
HPE iLO Management (standard)

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

HPE 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.

Intel Xeon-Platinum Processors

HPE BL460c Gen10 Intel Xeon-Platinum 8153 (2.0GHz/16-core/125W) FIO Processor Kit	875954-L21
HPE BL460c Gen10 Intel Xeon-Platinum 8156 (3.6GHz/4-core/105W) FIO Processor Kit	875955-L21
HPE BL460c Gen10 Intel Xeon-Platinum 8158 (3.0GHz/12-core/105W) FIO Processor Kit	875956-L21
HPE BL460c Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/145W) FIO Processor Kit	875957-L21
HPE BL460c Gen10 Intel Xeon-Platinum 8160M (2.1GHz/24-core/145W) FIO Processor Kit	877851-L21
HPE BL460c Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/145) FIO Processor Kit	875958-L21

Intel Xeon-Gold Processors

HPE BL460c Gen10 Intel Xeon-Gold 5115 (2.4GHz/10-core/85W) FIO Processor Kit	872013-L21
HPE BL460c Gen10 Intel Xeon-Gold 5118 (2.3GHz/12-core/105W) FIO Processor Kit	872014-L21
HPE BL460c Gen10 Intel Xeon-Gold 5120 (2.2GHz/14-core/105W) FIO Processor Kit	872015-L21
HPE BL460c Gen10 Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) FIO Processor Kit	875939-L21
HPE BL460c Gen10 Intel Xeon-Gold 6126 (2.6GHz/12-core/120W) FIO Processor Kit	875940-L21
HPE BL460c Gen10 Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) FIO Processor Kit	875941-L21
HPE BL460c Gen10 Intel Xeon-Gold 6130 (2.1GHz/16-core/120W) FIO Processor Kit	875942-L21

Configuration Information - Factory Integrated Models

HPE BL460c Gen10 Intel Xeon-Gold 6140M (2.3GHz/18-core/135W) FIO Processor Kit	875952-L21
HPE BL460c Gen10 Intel Xeon-Gold 6142 (2.6GHz/16-core/145W) FIO Processor Kit	875948-L21
HPE BL460c Gen10 Intel Xeon-Gold 6142M (2.6GHz/16-core/145W) FIO Processor Kit	875953-L21
HPE BL460c Gen10 Intel Xeon-Gold 6148 (2.4GHz/20-core/145W) FIO Processor Kit	875950-L21
HPE BL460c Gen10 Intel Xeon-Gold 6152 (2.1GHz/22-core/135W) FIO Processor Kit	875951-L21

Intel Xeon-Silver Processors

HPE BL460c Gen10 Intel Xeon-Silver 4108 (1.8GHz/8-core/85W) FIO Processor Kit	872008-L21
HPE BL460c Gen10 Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) FIO Processor Kit	872012-L21
HPE BL460c Gen10 Intel Xeon-Silver 4112 (2.6GHz/4-core/85W) FIO Processor Kit	872009-L21
HPE BL460c Gen10 Intel Xeon-Silver 4114 (2.2GHz/10-core/85W) FIO Processor Kit	872010-L21
HPE BL460c Gen10 Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) FIO Processor Kit	872011-L21

Intel Xeon-Silver Processors

HPE BL460c Gen10 Intel Xeon-Silver 4108 (1.8GHz/8-core/85W) FIO Processor Kit	872008-L21
HPE BL460c Gen10 Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) FIO Processor Kit	872012-L21
HPE BL460c Gen10 Intel Xeon-Silver 4112 (2.6GHz/4-core/85W) FIO Processor Kit	872009-L21
HPE BL460c Gen10 Intel Xeon-Silver 4114 (2.2GHz/10-core/85W) FIO Processor Kit	872010-L21
HPE BL460c Gen10 Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) FIO Processor Kit	872011-L21

Intel Xeon-Bronze Processors

HPE BL460c Gen10 Intel Xeon-Bronze 3104 (1.7GHz/6-core/85W) FIO Processor Kit	872006-L21
HPE BL460c Gen10 Intel Xeon-Bronze 3106 (1.7GHz/8-core/85W) FIO Processor Kit	872007-L21

NOTE: When using processors of 135W or greater, 10 fans are required in the c7000 for optimal performance.
NOTE: DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.
NOTE: Supports 1 or 2 processors. Mixing different processor models is not supported.
NOTE: For the Intel® C621 Chipset Scalable Family Processors come with model numbers to indicate SKU level, processor generation, SKU model, integrations-optimizations or memory capacity. (ie. HPE BL460c Gen10 Gen10 Intel Xeon-Gold 6134M; 6 is the SKU Level, 1 is the processor generation, 34 is the SKU model, m indicates memory sku)
NOTE: The letter "M" following the model number indicates higher maximum memory support up to 1.5TB per processor.
NOTE: Platinum – 8100 Series - 2S - 2UPI @ 10.4 GT/s, 6-Channel DDR4 @ 2666 MT/s, 768 GB memory capacity (1.5 TB on select skus), Intel Turbo Boost Technology, Intel Hyper-Threading Technology Intel AVX-512 (2x 512-bit FMA), 48 lanes PCIe 3.0, advanced RAS.
NOTE: Gold – 5100, 6100 Series - 2S - 2UPI @ 10.4 GT/s, 6-Channel DDR4 @ 2400 MHz (SKU 5122=supports 2666), 768 GB memory capacity (1.5 TB on select skus), Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA) (SKU 5122 supports 2x 512 bit FMA), 48 lanes PCIe 3.0, advanced RAS.
NOTE: Silver – 4100 Series - 2S - 2UPI @ 9.6 GT/s, 6-Channel DDR4 @ 2400 MHz, 768 GB memory capacity, Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA), 48 lanes PCIe 3.0, standard RAS.
NOTE: Bronze – 3100 Series - 2S - 2UPI @ 9.6 GT/s, 6-Channel DDR4 @ 2133 MHz, 768 GB memory capacity, Intel AVX-512(1x 512-bit FMA), 48 lanes PCIe 3.0, standard RAS
NOTE: The BL460c Gen10 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).

HPE Memory

NOTE: HPE memory from previous generation servers is not supported with this server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document

Configuration Information - Factory Integrated Models

for Gen10.
NOTE: LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.
NOTE: 128GB DIMMs cannot be mixed with other DIMM capacities within the server
NOTE: Depending on the memory configuration and processor model, the memory speed may run at
2666MT/s, 2400MT/s, or 2133MT/s. Please see the Online Memory Configuration Tool at:
https://h22195.www2.hpe.com/DDR4memoryconfig/Home/LEGAL

HPE SmartMemory

Registered DIMMs (RDIMMs)

HPE 8GB (1x8GB) Single Rank x8 DDR4-2666 CAS-22-19-19 Registered Memory Kit	815097-B21
HPE 16GB (1x16GB) Single Rank x4 DDR4-2666 CAS-22-19-19 Registered Memory Kit	815098-B21
HPE 16GB (1x16GB) Dual Rank x8 DDR4-2666 CAS-22-19-19 Registered Memory Kit	835955-B21
HPE 32GB (1x32GB) Dual Rank x4 DDR4-2666 CAS-22-19-19 Registered Memory Kit	815100-B21

Load Reduced DIMMs (LRDIMMs)

HPE 64GB (1x64GB) Quad Rank x4 DDR4-2666 CAS-22-19-19 LRDIMM Memory Kit	815101-B21

HPE 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.

20Gb FlexibleLOM Adapters

HPE FlexFabric 20Gb 2-port 630FLB FIO Adapter	700066-B21
HPE FlexFabric 20Gb 2-port 650FLB FIO Adapte	700764-B21

10Gb FlexibleLOM Adapters

HPE FlexFabric 10Gb 2-port 536FLB FIO Adapter	766491-B21
HPE Ethernet 10Gb 2-port 560FLB FIO Adapter	684214-B21

HPE Storage Controllers

HPE FIO Enable Smart Array S100i SR Setting	784308-B21

NOTE: The HPE Smart Array S100i SR Controller (chipset SATA) comes standard with the HPE BL460c
Gen10 10Gb/20Gb FLB CTO Blade. If the HPE Smart Array P204i-b controllers is not chosen, a SATA cable
will be provided to support SATA devices for the two internal drive bays. If RAID is required when using the
S100i, please choose 'HPE FIO Enable Smart Array S100i SR Setting' (784308-B21).

HPE Smart Array P204i-b SR Gen10 (4 Internal Lanes/1GB Cache) 12G SAS Modular Controller	804367-B21
HPE Smart Array P408e-m SR Gen10 (8 External Lanes/2GB Cache) 12G SAS Mezzanine Controller	804381-B21

Step 3: Choose Additional Factory Integration Options

HPE Unique Options

HPE BL460c Gen10 M.2 FIO Kit	873870-B21
HPE Gen10 NVMe FIO Setting	873373-B21

NOTE: The HPE Gen10 NVMe FIO Setting (873373-B21) is required to support SFF NVMe SSDs within the
system. This option is not compatible with the HPE Smart Array P204i-b,. Hewlett Packard Enterprise
recommends the use of a dual M.2 solid state drive enablement kit (873870-B21) together with M.2 SSD
media for boot when using this option.

HP Legacy FIO Mode Setting	758959-B22

NOTE: Changes default UEFI BIOS setting into Legacy BIOS setting. (758959-B22) is not supported with HPE
Dual 8GB microSD EM USB Kit (741279-B21) nor with HPE FIO Enable Smart Array S100i SR Setting
(784308-B21). Must select HPE Gen10 TPM 1.2 FIO if this is selected.

Configuration Information - Factory Integrated Models

HPE Memory Fast Fault Tolerance FIO Kit   875293-B21

NOTE: Enables Double Device Data Correct (DDDC) with significantly higher performance.

HPE Gen10 TPM 1.2 FIO   872108-B21

NOTE: Can only be selected with TPM 2.0 Gen10 Kit (864279-B21)

Converged Infrastructure Management Software

HPE OneView with iLO Advanced - Server hardware required on same purchase order

HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU   E5Y35AAE

HPE OneView for Blade Server including 3yr 24x7 Support FIO Bundle Physical 1-server LTU   F6Q89A

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:

- HPE BladeSystem c3000 Enclosure QuickSpecs:
  https://www.hpe.com/h20195/v2/GetPDF.aspx/c04128340.pdf
  NOTE: The c3000 HPE 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.
- HPE BladeSystem c7000 Enclosure QuickSpecs:
  https://www.hpe.com/h20195/v2/GetPDF.aspx/c04128339.pdf
  NOTE: The c7000 HPE 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.
- HPE 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 Gen10 Server Blade requires the c7000 enclosure to be configured with 10 fans and the c3000 enclosure to be configured with 6 fans.

Core Options

HPE Networking

NOTE: A 10 Gigabit Ethernet adapter supports linking at 1Gbps or 10Gbps when connected to an interconnect module with 10Gb Ethernet downlinks.
NOTE: A 10 Gigabit Ethernet adapter supports linking at only 1Gbps when connected to an interconnect module with 1Gb Ethernet downlinks.
NOTE: The 10 Gigabit Ethernet adapters on each server blade connect to a 10Gb interconnect in bays 3-6 (HPE BladeSystem c7000 Enclosure) or bays 2-4 (HPE BladeSystem c3000 Enclosure).

20 Gigabit Ethernet Mezzanine Cards

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

NOTE: Please see QuickSpecs for technical specifications and additional information at
https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c04312720

HPE FlexFabric 20Gb 2-port 650M Adapter   700767-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at
https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c04347342

10 Gigabit Ethernet Mezzanine Cards

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

NOTE: Please see QuickSpecs for technical specifications and additional information at:
http://www8.hp.com/us/en/products/iss-adapters/product-detail.html?oid=5404540

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

NOTE: Please see QuickSpecs for technical specifications and additional information at:
https://www.hpe.com/h20195/v2/GetPDF.aspx/c04111406.pdf

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.

20Gb FlexibleLOM Adapters

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

NOTE: Please see QuickSpecs for technical specifications and additional information at
https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c04312719

HPE FlexFabric 20Gb 2-port 650FLB Adapter   700763-B21

NOTE: Please see QuickSpecs for technical specifications and additional information at
https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c04347341

NOTE: Please see QuickSpecs for technical specifications and additional information at
https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c04347246

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

NOTE: Please see QuickSpecs for technical specifications and additional information at
https://www.hpe.com/h20195/v2/GetPDF.aspx/c04111516.pdf

HPE 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 mezzanine slot 2, both ports are active.

HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+M Adapter   764283-B21

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

10Gb FlexibleLOM Adapters

HPE FlexFabric 10Gb 2-port 536FLB Adapter   766490-B21

Core Options

HPE Fibre Channel

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

NOTE: Please see QuickSpecs for technical specifications and additional information at
https://www.hpe.com/h20195/v2/getpdf.aspx/c04315132.pdf?ver=2

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

NOTE: Please see QuickSpecs for technical specifications and additional information at
https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c04126962

HPE Processors

Intel Xeon-Platinum Processors

HPE BL460c Gen10 Intel Xeon-Platinum 8153 (2.0GHz/16-core/125W) Processor Kit	875954-B21
HPE BL460c Gen10 Intel Xeon-Platinum 8156 (3.6GHz/4-core/105W) Processor Kit	875955-B21
HPE BL460c Gen10 Intel Xeon-Platinum 8158 (3.0GHz/12-core/105W) Processor Kit	875956-B21
HPE BL460c Gen10 Intel Xeon-Platinum 8160 (2.1GHz/24-core/145W) Processor Kit	875957-B21
HPE BL460c Gen10 Intel Xeon-Platinum 8160M (2.1GHz/24-core/145W) Processor Kit	877851-B21
HPE BL460c Gen10 Intel Xeon-Platinum 8164 (2.0GHz/26-core/145) Processor Kit	875958-B21

Intel Xeon-Gold Processors

HPE BL460c Gen10 Intel Xeon-Gold 5115 (2.4GHz/10-core/85W) Processor Kit	872013-B21
HPE BL460c Gen10 Intel Xeon-Gold 5118 (2.3GHz/12-core/105W) Processor Kit	872014-B21
HPE BL460c Gen10 Intel Xeon-Gold 5120 (2.2GHz/14-core/105W) Processor Kit	872015-B21
HPE BL460c Gen10 Intel Xeon-Gold 5122 (3.6GHz/4-core/105W) Processor Kit	875939-B21
HPE BL460c Gen10 Intel Xeon-Gold 6126 (2.6GHz/12-core/120W) Processor Kit	875940-B21
HPE BL460c Gen10 Intel Xeon-Gold 6128 (3.4GHz/6-core/115W) Processor Kit	875941-B21
HPE BL460c Gen10 Intel Xeon-Gold 6130 (2.1GHz/16-core/120W) Processor Kit	875942-B21
HPE BL460c Gen10 Intel Xeon-Gold 6132 (2.6GHz/14-core/140W) Processor Kit	875943-B21
HPE BL460c Gen10 Intel Xeon-Gold 6134 (3.3GHz/8-core/130W) Processor Kit	875944-B21
HPE BL460c Gen10 Intel Xeon-Gold 6134M (3.3GHz/8-core/130W) Processor Kit	877807-B21
HPE BL460c Gen10 Intel Xeon-Gold 6136 (3.0GHz/12-core/150W) Processor Kit	875945-B21
HPE BL460c Gen10 Intel Xeon-Gold 6138 (2.0GHz/20-core/120W) Processor Kit	875946-B21
HPE BL460c Gen10 Intel Xeon-Gold 6140 (2.3GHz/18-core/135W) Processor Kit	875947-B21
HPE BL460c Gen10 Intel Xeon-Gold 6140M (2.3GHz/18-core/135W) Processor Kit	875952-B21
HPE BL460c Gen10 Intel Xeon-Gold 6142 (2.6GHz/16-core/145W) Processor Kit	875948-B21
HPE BL460c Gen10 Intel Xeon-Gold 6142M (2.6GHz/16-core/145W) Processor Kit	875953-B21
HPE BL460c Gen10 Intel Xeon-Gold 6148 (2.4GHz/20-core/145W) Processor Kit	875950-B21
HPE BL460c Gen10 Intel Xeon-Gold 6152 (2.1GHz/22-core/135W) Processor Kit	875951-B21

Intel Xeon-Silver Processors

HPE BL460c Gen10 Intel Xeon-Silver 4108 (1.8GHz/8-core/85W) Processor Kit	872008-B21
HPE BL460c Gen10 Intel Xeon-Silver 4110 (2.1GHz/8-core/85W) Processor Kit	872012-B21
HPE BL460c Gen10 Intel Xeon-Silver 4112 (2.6GHz/4-core/85W) Processor Kit	872009-B21
HPE BL460c Gen10 Intel Xeon-Silver 4114 (2.2GHz/10-core/85W) Processor Kit	872010-B21
HPE BL460c Gen10 Intel Xeon-Silver 4116 (2.1GHz/12-core/85W) Processor Kit	872011-B21

Intel Xeon-Bronze Processors

HPE BL460c Gen10 Intel Xeon-Bronze 3104 (1.7GHz/6-core/85W) Processor Kit	872006-B21
HPE BL460c Gen10 Intel Xeon-Bronze 3106 (1.7GHz/8-core/85W) Processor Kit	872007-B21

NOTE: When using processors of 135W or greater, 10 fans are required in the c7000 for optimal performance.
NOTE: DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the

Core Options

quantity and type of DIMMs installed.
NOTE: Supports 1 or 2 processors. Mixing different processor models is not supported.
NOTE: For the Intel® C621 Chipset Scalable Family Processors come with model numbers to indicate SKU level, processor generation, SKU model, integrations-optimizations or memory capacity. (ie. HPE BL460c Gen10 Gen10 Intel Xeon-Gold 6134M; 6 is the SKU Level, 1 is the processor generation, 34 is the SKU model, m indicates memory sku)
NOTE: The letter "M" following the model number indicates higher maximum memory support up to 1.5TB per processor.
NOTE: Platinum – 8100 Series - 2S - 2UPI @ 10.4 GT/s, 6-Channel DDR4 @ 2666 MT/s, 768 GB memory capacity (1.5 TB on select skus), Intel Turbo Boost Technology, Intel Hyper-Threading Technology Intel AVX-512 (2x 512-bit FMA), 48 lanes PCIe 3.0, advanced RAS.
NOTE: Gold – 5100, 6100 Series - 2S - 2UPI @ 10.4 GT/s, 6-Channel DDR4 @ 2400 MHz (SKU 5122=supports 2666), 768 GB memory capacity (1.5 TB on select skus), Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA) (SKU 5122 supports 2x 512 bit FMA), 48 lanes PCIe 3.0, advanced RAS.
NOTE: Silver – 4100 Series - 2S - 2UPI @ 9.6 GT/s, 6-Channel DDR4 @ 2400 MHz, 768 GB memory capacity, Intel Turbo Boost Technology, Intel Hyper-Threading Technology, Intel AVX-512(1x 512-bit FMA), 48 lanes PCIe 3.0, standard RAS.
NOTE: Bronze – 3100 Series - 2S - 2UPI @ 9.6 GT/s, 6-Channel DDR4 @ 2133 MHz, 768 GB memory capacity, Intel AVX-512(1x 512-bit FMA), 48 lanes PCIe 3.0, standard RAS
NOTE: The BL460c Gen10 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).

HPE Solid State M.2 SATA Drives

HPE Solid State M.2 drives for installation internal to server blade.
NOTE: The solid state M.2 drives require the selection of HPE BL460c Gen10 M.2 FIO Enablement Kit (873870-B21).
NOTE: M.2 drives cannot be mixed with other sizes and capacities within the system.
NOTE: RAID 1, 0, and 5 are provided through the S100i in UEFI BIOS mode only.

HPE BL460c Gen10 M.2 FIO Enablement Kit	873870-B21
HPE 120GB 6G SATA Read Intensive M.2 2280 3yr Wty Solid State Drive	777262-B21
HPE 340GB SATA 6G Read Intensive M.2 2280 3yr Wty SSD	777264-B21
HPE 150GB SATA 6G Read Intensive M.2 2280 SSD	875317-B21
HPE 480GB SATA 6G Read Intensive M.2 2280 SSD	875319-B21

HPE Hard Drives

NOTE: The ProLiant BL460c Gen10 server includes the HPE hot-plug small form factor (SFF) SmartDrive carrier for enhanced management and reduced maintenance errors. HPE drives from generation G7 servers and before are not compatible with the BL460c Gen10 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: HPE 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.

Enterprise - 12G SAS - SFF Drives

HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	759208-B21
HPE 300GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870753-B21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	785067-B21
HPE 300GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872475-B21
HPE 450GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	759210-B21

Core Options

HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty HDD	759212-B21
HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	870763-B21
HPE 600GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	870757-B21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	781516-B21
HPE 600GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872477-B21
HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty DS Digitally Signed Firmware HDD	870759-B21
HPE 900GB SAS 12G Enterprise 15K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	870765-B21
HPE 900GB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	785069-B21
HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty Digitally Signed Firmware HDD	872479-B21
HPE 1.2TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty HDD	781518-B21
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e Digitally Signed Firmware HDD	872481-B21
HPE 1.8TB SAS 12G Enterprise 10K SFF (2.5in) SC 3yr Wty 512e HDD	791034-B21

Midline - 12G SAS - SFF Drives

HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty HDD	832514-B21
HPE 1TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765464-B21
HPE 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765466-B21

Midline 6G SATA - SFF Drives

HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty HDD	655710-B21
HPE 1TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765453-B21
HPE 2TB SATA 6G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e HDD	765455-B21

Write Intensive - PCIe/NVMe - SFF - Solid State Drives

HPE 400GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty SSD	736936-B21
HPE 800GB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty SSD	736939-B21
HPE 1.6TB NVMe x4 Lanes Write Intensive SFF (2.5in) SCN 3yr Wty SSD	764892-B21

Write Intensive - 6G SATA - SFF - Solid State Drives

HPE 400GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872355-B21
HPE 800GB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872359-B21
HPE 1.6TB SATA 6G Write Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872363-B21

Read Intensive - 6G SATA - SFF - Solid State Drives

HPE 150GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	869374-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	869376-B21
HPE 240GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868814-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	869378-B21
HPE 480GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868818-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	869384-B21
HPE 960GB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868822-B21
HPE 1.6TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	869386-B21
HPE 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868826-B21
HPE 3.8TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	868830-B21

Read Intensive - NVMe - SFF - Solid State Drives

HPE 400GB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty SSD	764904-B21
HPE 1.2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty SSD	764906-B21
HPE 2TB NVMe x4 Lanes Read Intensive SFF (2.5in) SCN 3yr Wty SSD	764908-B21

Read Intensive - 6G SATA - UFF - Solid State Drives

HPE 340GB SATA 6G Read Intensive UFF 3yr Wty Dual M.2 Kit	815605-B21

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HPE 120GB SATA 6G Read Intensive UFF 3yr Wty M.2 Kit	822594-B21
HPE 120GB SATA 6G Read Intensive UFF 3yr Wty Dual M.2 Kit	822593-B21
HPE 340GB SATA 6G Read Intensive UFF 3yr Wty M.2 Kit	815606-B21

Mixed Use - 6G SATA - SFF - Solid State Drives

HPE 480GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872344-B21
HPE 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872348-B21
HPE 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware SSD	872352-B21

Mixed Use - NVMe - SFF - Solid State Drives

HPE 400GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty SSD	765034-B21
HPE 800GB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty SSD	765036-B21
HPE 1.6TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty SSD	765038-B21
HPE 2TB NVMe x4 Lanes Mixed Use SFF (2.5in) SCN 3yr Wty SSD	765044-B21

NOTE: The HPE Gen910 Broadwell NVMe FIO Setting (873373-B21825555-B21) is required to support SFF NVMe SSDs within the system. This option is not compatible with the HPE Smart Array P244brP204i-b, HPE Smart Array P246br, or HPE Smart HBA H244br. Hewlett Packard Enterprise recommends the use of a dual M.2 solid state drive enablement kit (873870-B21) together with M.2 SSD media for boot when using this option.

NOTE: Hewlett Packard Enterprise has qualified the NVMe drive portfolio using the Operating System inbox drivers, full detail on the Solid State Drive QuickSpecs:

https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c04154378

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

Additional Options

HPE iLO Advanced License

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

HPE iLO Advanced for BladeSystem including 3yr 24x7 Technical Support and Updates E-LTU	E6U63ABE
HPE iLO Advanced for BladeSystem including 3yr 24x7 Tech Support and Updates 1-server LTU	BD502A
HPE iLO Advanced for BladeSystem including 1yr 24x7 Technical Support and Updates E-LTU	E6U60ABE
HPE iLO Advanced for BladeSystem including 1yr 24x7 Support 1-server LTU	512488-B21

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 HPE Software Technical Support Service.
NOTE: For additional license kits, including electronic delivery options, please see the iLO QuickSpecs at
https://www.hpe.com/us/en/servers/integrated-lights-out-ilo.html

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 HPE Software Technical Support Service.
NOTE: For additional license kits, please see the QuickSpecs at:
http://h20564.www2.hpe.com/hpsc/doc/public/display?docId=c04951959

Converged Infrastructure Management Software

HPE OneView

HPE OneView with iLO Advanced

HPE OneView including 3yr 24x7 Support Physical 1-server LTU	E5Y34A
HPE OneView including 3yr 24x7 Support Flexible Quantity E-LTU	E5Y35AAE
HPE OneView Physical Media Kit LTU	E5Y37A
HPE OneView w/o iLO including 3yr 24x7 Support 1-server LTU	P8B24A
HPE OneView w/o iLO including 3yr 24x7 Support Flexible Quantity E-LTU	P8B26AAE
HPE OneView w/o iLO including 3yr 24x7 Support 1-server FIO LTU	P8B31A

NOTE: For additional license kits please see the QuickSpecs at
http://h20564.www2.hpe.com/hpsc/doc/public/display?docId=c04951959

HPE Security

HPE Trusted Platform Module 2.0 Gen10 Kit	864279-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 R2 and 2012. 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 R2 and 2012 has not been tampered with while the system was offline.
NOTE: For more information about TPM, including a white paper, go to
https://www.hpe.com/h20195/v2/getpdf.aspx/4AA5-4782ENW.pdf
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.

HPE Storage Controllers

HPE Smart Array P204i-b SR Gen10 (4 Internal Lanes/1GB Cache) 12G SAS Modular Controller	804367-B21
HPE Smart Array P408e-m SR Gen10 (8 External Lanes/2GB Cache) 12G SAS Mezzanine Controller	804381-B21

Additional Options

HPE FIO Enable Smart Array S100i SR Setting	784308-B21
HPE Gen10 NVMe FIO Setting	873373-B21

NOTE: The HPE Gen10 NVMe FIO Setting (873373-B21) is required to support SFF NVMe SSDs within the system. This option is not compatible with the HPE Smart Array P204i-b,. Hewlett Packard Enterprise recommends the use of a dual M.2 solid state drive kit for boot when using this option.

NOTE: The HPE Smart Array S100i SR Controller (chipset SATA) comes standard with the HPE BL460c Gen10 10Gb/20Gb FLB CTO Blade. If the HPE Smart Array P204i-b controllers is not chosen, a SATA cable will be provided to support SATA devices for the two internal drive bays. If RAID is required when using the S100i, please choose 'HPE FIO Enable Smart Array S100i SR Setting' (784308-B21).

HPE Storage Controllers

HPE Smart Array P204i-b SR Gen10 (4 Internal Lanes/1GB Cache) 12G SAS Modular Controller	804367-B21
HPE Smart Array P408e-m SR Gen10 (8 External Lanes/2GB Cache) 12G SAS Mezzanine Controller	804381-B21
HPE FIO Enable Smart Array S100i SR Setting	784308-B21
HPE Gen10 NVMe FIO Setting	873373-B21

NOTE: The HPE Gen10 NVMe FIO Setting (873373-B21) is required to support SFF NVMe SSDs within the system. This option is not compatible with the HPE Smart Array P204i-b,. Hewlett Packard Enterprise recommends the use of a dual M.2 solid state drive kit for boot when using this option.

NOTE: The HPE Smart Array S100i SR Controller (chipset SATA) comes standard with the HPE BL460c Gen10 10Gb/20Gb FLB CTO Blade. If the HPE Smart Array P204i-b controllers is not chosen, a SATA cable will be provided to support SATA devices for the two internal drive bays. If RAID is required when using the S100i, please choose 'HPE FIO Enable Smart Array S100i SR Setting' (784308-B21).

HPE Secure Encryption

HPE Smart Array Secure Encryption E-LTU	Q2F26AAE

NOTE: HPE Secure Encryption is supported on the HPE Smart Array P204i-b and P408e-m as an option. HPE Secure Encryption licensing is based on the number of physical drives requiring encryption.

NOTE: For more information about HPE Secure Encryption, go to
http://www8.hp.com/us/en/products/server-software/product-detail.html?oid=6532260

HPE InfiniBand Mezzanine Adapters

NOTE: InfiniBand FDR is the only speed supported on the HPE BL460c Gen10. For additional information, please see the HPE BladeSystem c7000 Enclosure and InfiniBand QuickSpecs at:
https://www.hpe.com/h20195/v2/GetPDF.aspx/c04128339.pdf
https://www.hpe.com/h20195/v2/getpdf.aspx/c04126044.pdf?ver=26

HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+M Adapter	764283-B21

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.

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.

HPE Flash Media Kits for USB Drives

HPE Enterprise Mainstream Flash Media Kits for Memory Cards

HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21
HPE 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21
HPE 32GB microSD Mainstream Flash Media Kit	700139-B21
HP Dual 8GB microSD Enterprise Midline USB Kit	741279-B21

HPE Care Pack Services

Proactive Care Services

Additional Options

HPE 3Y PC 24x7 BL460c Gen10 SVC   H7LT4E
HPE 3Y PC 24x7 wDMR BL460c Gen10 SVC   H7LT5E
HPE 3Y PCA 24x7 BL460c Gen10 SVC   H7LT7E
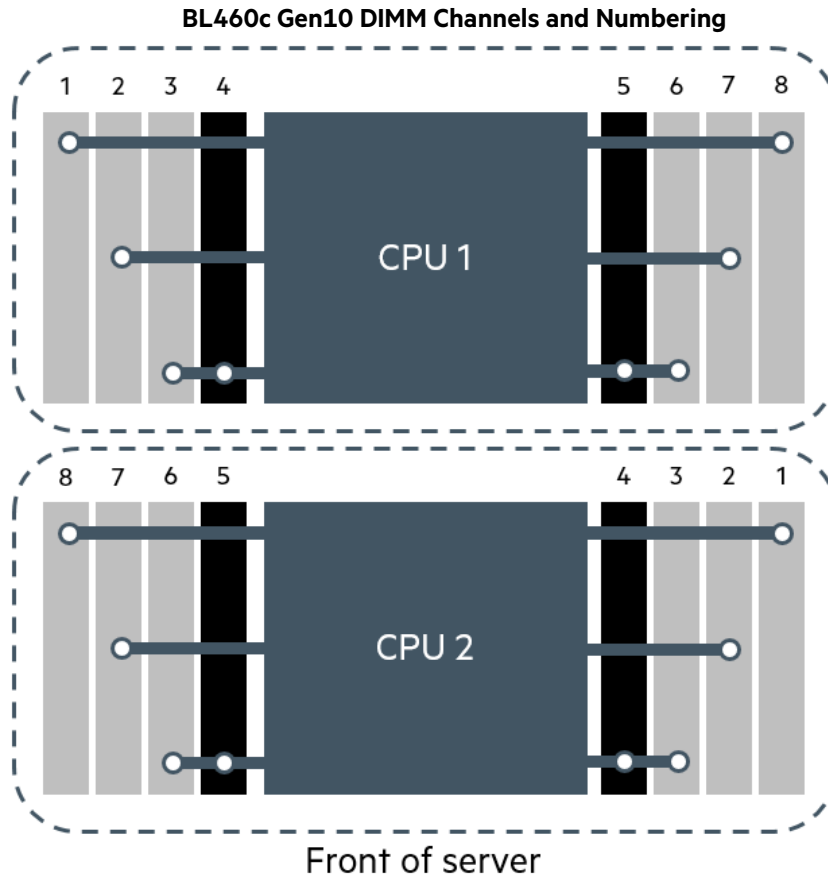HPE 3Y PCA 24x7 wDMR BL460c Gen10 SVC   H7LT8E

Installation Services

HPE Install c-Class Server Blade Service   UE493E

NOTE: Additional HPE Care Pack services can be found at: **http://www8.hp.com/us/en/business-services/it-services.html?compURI=1077422#.V9HL_fkrKCg**

Memory

Memory Subsystem Architecture

Each processor socket contains six memory channels that support one or two DIMMs each for a total of eight (8) DIMMs per installed processor or a grand total of sixteen (16) DIMMs for the server blade

BL460c Gen10 DIMM Channels and Numbering

8 DIMM per CPU Population Guidelines

NOTE: Chart to be read from left to right. For example, when installing four (4) DIMMs on a processor, DIMMs 2, 3, 6, and 7 should be populated.

Memory

NOTE: For optimal performance, HPE does not recommend configurations with five (5) or seven (7) DIMMs in the BL460c Gen10 server blade.
NOTE: For additional information, please see the HPE SmartMemory QuickSpecs at:
https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111535

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.
- LRDIMM and RDIMMs are all distinct memory technologies and cannot be mixed within a compute module.
- DIMMs of different speeds may be mixed in any order; the compute module 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.
- HPE memory from previous generation servers is not compatible with the HPE ProLiant BL460c Gen10 Server Blade.

To realize the performance memory capabilities listed in this document, HPE SmartMemory is required. For additional information, please see the HPE SmartMemory QuickSpecs at: **https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111535**

BL460c Gen10 Server Blade
Memory Speed Table

6DPC	BL460c Gen10 Server Blade			
DIMM Type	Register DIMM (RDIMM)			
HPE SKU P/N	815097-B21	815098-B21	835955-B21	815100-B21
SKU Description	HPE 8GB 1Rx8 PC4-2666V-R	HPE 16GB 1Rx4 PC4-2666V-R	HPE 16GB 2Rx8 PC4-2666V-R	HPE 32GB 2Rx4 PC4-2666V-R
DIMM Rank	Single Rank (1R)	Single Rank (1R)	Dual Rank (2R)	Dual Rank (2R)
DIMM Capacity	**8GB**	**16GB**	**16GB**	**32GB**
Voltage	1.2V	1.2V	1.2V	1.2V
DRAM depth [bit]	1G	2G	1G	2G
DRAM Width [bit]	x8	x4	x8	x4
DRAM Density	8Gb	8Gb	8Gb	8Gb
CAS Latency	19-19-19	19-19-19	19-19-19	19-19-19
DIMM Native Speed (MT/s)	2666	2666	2666	2666
HPE Server Memory Speed (MT/s) with Intel Xeon 8100 & 6100 Series Scalable Family Processors (Platinum)(also supported 5122)				
1 DIMM Per Channel	2666	2666	2666	2666
2 DIMM Per Channel	2666	2666	2666	2666
HPE Server Memory Speed (MT/s) with Intel Xeon 5100 & 4100 Series Scalable Family Processors (Silver/Gold)(except for 5122 processor above)				
1 DIMM Per Channel	2400	2400	2400	2400
2 DIMM Per Channel	2400	2400	2400	2400
HPE Server Memory Speed (MT/s) with Intel Xeon 3100 Series Scalable Family Processors (Bronze)				
1 DIMM Per Channel	2133	2133	2133	2133
2 DIMM Per Channel	2133	2133	2133	2133

Memory

DIMM Type	Load Reduced (LRDIMM)	
HPE SKU P/N	815101-B21	
SKU Description	HPE 64GB 4Rx4 PC4-2400V-L	
DIMM Rank	Quad Rank (4R)	
DIMM Capacity	**64GB**	
Voltage	1.2V	
DRAM depth [bit]	2G	
DRAM Width [bit]	x4	
DRAM Density	8Gb	
CAS Latency	19-19-19	
DIMM Native Speed (MT/s)	2666	
HPE Server Memory Speed (MT/s) with Intel Xeon 8100 & 6100 Series Scalable Family Processors (Gold/Platinum)		
1 DIMM Per Channel	2666	
2 DIMM Per Channel	2666	
HPE Server Memory Speed (MT/s) with Intel Xeon 5100 & 4100 Series Scalable Family Processors (Silver/Gold)		
1 DIMM Per Channel	2400	
2 DIMM Per Channel	2400	
HPE Server Memory Speed (MT/s) with Intel Xeon 3100 Series Scalable Family Processors (Bronze)		
1 DIMM Per Channel	2133	
2 DIMM Per Channel	2133	

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)	Maximum: all processors, 16 DIMMs, hard drives, mezzanine cards, and two flash cache batteries installed)	14.00 lb (6.33 kg)
	Minimum: one processor and 2 DIMMs installed	10.50 lb (4.75 kg)

Power Specifications

For power specifications including input requirements, BTU rating, and power supply output, please see the:

- HPE BladeSystem c3000 Enclosure QuickSpecs at **https://www.hpe.com/h20195/v2/GetDocument.aspx?docname=c04123379**
- HPE BladeSystem c7000 Enclosure QuickSpecs at **https://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04229580**

To review typical system power ratings use the HPE Power Advisor which is available via the online tool located at **https://paonline56.itcs.hpe.com**.

NOTE: For optimal cooling and system performance the BL460c Gen10 Server Blade requires the c7000 enclosure to be configured with 10 fans and the c3000 enclosure to be configured with 6 fans.

System Inlet Temperature

Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1,000 ft) above sea level to a maximum of 3,050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).

Extended Ambient Operating Support

For Approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft)

NOTE: Qualifications for extended ambient configurations are detailed at: **https://h20566.www2.hpe.com/hpsc/doc/public/display?sp4ts.oid=7271259&docId=emr_na-c04513664&docLocale=en_US**

Relative Humidity (non-condensing)

Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

Altitude

Operating	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).
Non-operating	9,144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1,500 ft/min).

Acoustic Noise

For acoustic noise specifications, please see the HPE BladeSystem c-Class Enclosures QuickSpecs located at:

Technical Specifications

- HPE BladeSystem c3000 Enclosure QuickSpecs:
  https://www.hpe.com/h20195/v2/GetPDF.aspx/c04128340.pdf
- HPE BladeSystem c7000 Enclosure QuickSpecs:
  https://www.hpe.com/h20195/v2/GetPDF.aspx/c04128339.pdf

HPE FlexFabric 10Gb 2-port 536FLB 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	QLogic 57840S with integrated MAC/PHY
Data Transfer Method	x8 PCI Express 3.0
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 HPE BladeSystem c-Class interconnect components. Both ports will operate at the same speed. **NOTE:** Each port on the 536FLB 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	Full hardware offload of iSCSI and FCoE storage protocol processing for highest performance converged Ethernet data and storage networks. Dual-port 10GbE Flex-10 FlexibleLOM network adapter that provides the flexibility to choose the type of LOM to meet growing infrastructure needs Industry-leading throughput and latency performance Supports the HPE Flex-10 blade interconnect technology User configurable bandwidth settings when combined with the 10Gb Flex-10 Virtual Connect module. From 100Mb/s to10Gb/s on up to four "Physical Function" NICs per port, in increments of 100Mb/s for NIC. The combined bandwidth of NICs cannot exceed port bandwidth i.e. 10 Gb. Up to 40Gb/s bi-directional near line rate throughput Hardware acceleration and offloads for stateless TCP/IP, TCP Offload Engine (TOE) Improved small packet performance Support for Preboot eXecution Environment (PXE) Integrated PHY and MAC Supports for SR-IOV Support for Network Partitioning (NPAR)

HPE FlexFabric 20Gb 2-port 650FLB FlexibleLOM

Type	Integrated dual-port KR2 20Gb FlexibleLOM with FlexFabric (Flex-20, FCoE, RoCE, Tunnel Offload with VXLAN/NVGRE, hardware-based iSCSI, iSCSI boot, TCP/IP offload engine, and autosensing Ethernet speed capability)
Network Processor	Emulex XE-104
Data Transfer Method	x8 PCI Express 3.0
Network Transfer Rate	Two ports, each at 40 Gbps bi-directional; 80 Gbps aggregate bi-directional theoretical bandwidth
IEEE Compliance	802.3ae, 802.1Q, 802.3x, 802.1p, 802.3ad/LACP, 802.1AB(LLDP), 802.1Qbg, 802.1Qbb, 802.1Qaz, 802.3ap
Standard Features	Dual 20Gb ports provide up to 80Gb bi-directional per adapter Multi-speed adapter operates at either 20GbE or 10GbE Converges FCoE or RoCE with LAN traffic on a single Ethernet wire Tunnel Offload support for VXLAN and NVGRE RDMA over Converged Ethernet (RoCE) for greater server efficiency and lower latency (6125XLG only) Advanced storage offload processing freeing up valuable CPU cycles Supports UEFI and legacy boot options Mixed Storage – supports NIC + FCoE on one port, and NIC + iSCSI on the other Concurrent Storage – concurrently supports NIC, FCoE, and iSCSI storage functions on the same

Technical Specifications

port (NIC + FCoE + iSCSI)
Industry-leading throughput and latency performance
Supports the HPE Flex-20 blade interconnect technology
Over eight million small packets/s, ideal for web/mobile applications, mobile messaging, and social media
User configurable bandwidth settings when combined with the 20Gb Flex-20 Virtual Connect module. From 100Mb/s to10Gb/s on up to four "Physical Function" NICs per port, in increments of 100Mb/s for NIC. The combined bandwidth of NICs cannot exceed port bandwidth i.e. 20 Gb/s.
Greater bandwidth with PCIe 3.0
Jumbo Frames support
Supports Wake On LAN (WOL)
Support for Preboot eXecution Environment (PXE)
Support for Microsoft Windows SMB Direct
Optimized host virtualization density with SR-IOV support

Environment-friendly Products and Approach

End-of-life Management and Recycling

Hewlett Packard Enterprise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: **http://www.hpe.com/info/recycle .**To recycle your product, please go to: **http://www.hpe.com/info/recycle** or contact your nearest Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise 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 Enterprise web site at: **http://www.hpe.com/info/recycle .**These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
17-Jul-2017	From Version 1 to 2	Changed	Information in QuickSpecs was updated.
11-Jul-2017	Version 1	Created	New QuickSpecs.

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