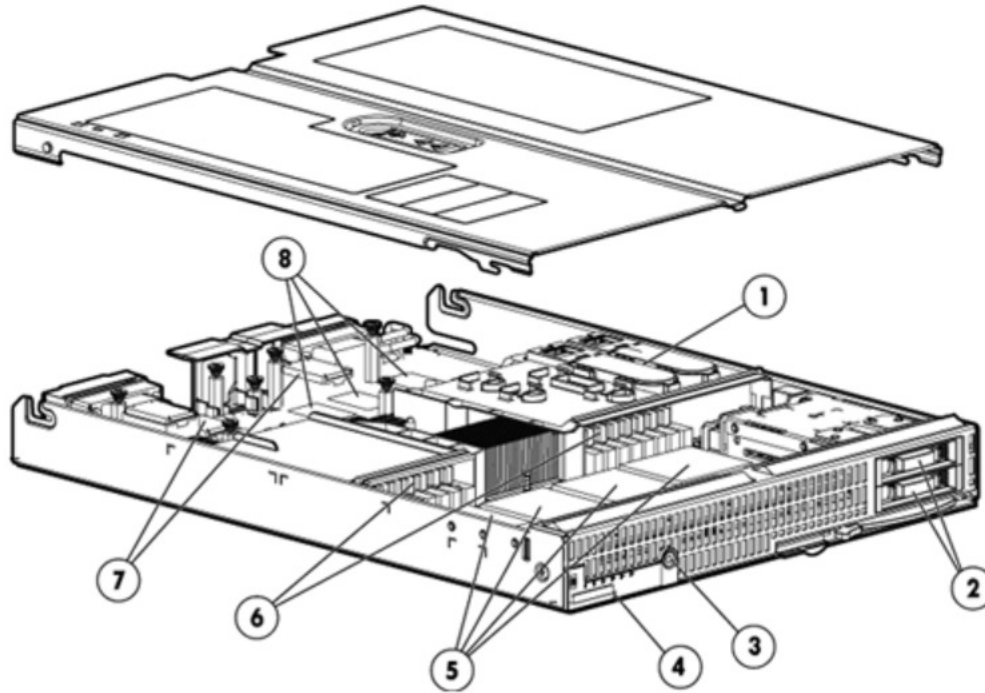


QuickSpecs

HP ProLiant BL680c Generation 5 (G5) Server Blade

Overview



HP ProLiant BL680c Generation 5 (G5) Server Blade

Front view image

- | | |
|--|--|
| 1. Cache battery modules | 5. Two or four Intel® Xeon® 7400 series processors providing up to 6 cores |
| 2. Two small form factor (SFF) hot-plug drive bays | 6. To 128 GB PC2-5300, DDR2 FB memory via 16 DIMMs |
| 3. Power button | 7. Three I/O expansion mezzanine slots |
| 4. Local I/O connector | 8. Four embedded Gigabit Ethernet adapter ports |

At A Glance

This document covers the HP ProLiant BL680c G5 server blade only. For more information on the HP BladeSystem c-Class Enclosure and HP BladeSystem c-Class Interconnect and Mezzanine Components, please see the following:

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

Overview

● Processor:

- Two or four Intel Xeon 7400 series processors with up to 6 cores
 - NOTE:** The BL680c G5 supports either two or four processors. One and three processors are not supported.
 - NOTE:** All processors within the server must be identical.
- Intel 7300 chip set supporting a 1066 MT/s Dedicated High-Speed Interconnect (DHSI)
- Demand Based Switching (DBS) with Enhanced Intel SpeedStep® Technology on select models
- Up to 16 MB of L3 cache
- Intel® Virtualization Technology

● Memory:

- Sixteen (16) DIMM slots supporting:
 - 128 GB PC2-5300, fully buffered DDR2-667MHz memory
 - 64 GB PC2-5300, fully buffered DDR2-667MHz low power memory
 - Advanced ECC memory technology
 - Memory interleaving (2 x 1), memory mirroring, and online spare capacity

● Storage Controller:

- Integrated HP Smart Array P400i Controller with 256MB ECC protected cache and RAID 0 and 1
- Upgrades include:
 - Battery-backed write cache (BBWC) for standard 256MB cache
 - 512MB ECC protected cache upgrade with BBWC
- Optional Storage Works P700m Controller with either 256MB cache, or 512MB cache with or without BBWC
- Optional IO Accelerator cards for high I/O performance

● Internal Drive Support:

- Up to two (2) small form factor (SFF) SAS or SATA hot-plug hard drives
- Support for the optional SB40c Storage Blade

● Network Controller:

- Four (4) embedded network adapter ports, plus one (1) additional management network adapter port:
 - Two (2) embedded NC373i Multifunction Gigabit Server Adapters with TCP/IP offload engine for Microsoft Windows iSCSI boot, and optional accelerated iSCSI
 - One (1) NC326i Dual Port Gigabit Server Adapter
 - One (1) additional embedded 10/100 network adapter dedicated to iLO 2management
- NOTE:** The Gigabit Ethernet adapters transmit from the server at 2000 Mbps, full duplex per port. For more information, see the "Network Controller" item in Standards Features section.

● Mezzanine Support:

- Three (3) mezzanine expansion slots; one Type I x4 PCIe (15 watts) and two x8 PCIe (25 watts). The expansion slots provide a choice of for additional I/O mezzanine including:
 - Dual Port 4Gb Fibre Channel for SAN connectivity (choice of Emulex or QLogic)
 - Multiple dual port 10Gb Ethernet adapter options for high bandwidth network connectivity
 - Multiple dual and quad port Gigabit Ethernet network adapter options for increased bandwidth and additional network ports
 - I/O Accelerators for high transaction rate local storage
 - 4X DDR InfiniBand (20Gb) for low latency, high bandwidth server interconnectivity

Overview

- HP Integrated Lights-Out 2 (iLO 2) management processor for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration.
- HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, monitor, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports both Windows and Linux-based central management servers.
- HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. This ultimately enables them to dynamically keep pace with the organization's changing business requirements.
- **Operating System Support:**
 - Microsoft Windows, RHEL, SLES, OEL, Sun Solaris, VMware ESX, and HP Essentials Citrix for XenServer
- **Form Factor:**
 - The HP ProLiant BL680c G5 is a full height server blade that plugs into the HP BladeSystem c3000 and c7000 enclosures
- **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 8 HP ProLiant BL680c servers plugged vertically.
 - The HP BladeSystem c3000 rack enclosure is 6U high and holds up to 4 HP ProLiant BL680c servers plugged horizontally.
 - Server blades, storage blades, and interconnect modules are all designed to fit into the c7000 and c3000 enclosures.
 - For additional enclosure information, please see:
<http://h18004.www1.hp.com/products/ blades/ components/ enclosures/ c-class/ index.html>.
- **Warranty:**
 - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. 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. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
NOTE: Server warranty includes 3 year Parts, 3 year Labor, 3-year on-site support. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
<http://h18004.www1.hp.com/products/ servers/ platforms/ warranty/ index.html>

QuickSpecs

HP ProLiant BL680c Generation 5 (G5) Server Blade

Standard Features

Processor

One of the following depending on Model

Six-Core Processors

Intel® Xeon® E7458 (2.40GHz/6-core/16MB/90W) Processor

Intel® Xeon® E7450 (2.40GHz/6-core/12MB/90W) Processor

Intel® Xeon® L7455 (2.13GHz/6-core/12MB/65W) Processor

NOTE: Offered as Configure-To-Order. See the Factory Integrated Models section for more details.

Four-Core Processors

Intel® Xeon® E7440 (2.40GHz/4-core/16MB/90W) Processor

Intel® Xeon® E7430 (2.13GHz/4-core/12MB/90W) Processor

Intel® Xeon® E7420 (2.13GHz/4-core/8MB/90W) Processor

NOTE: Offered as Configure-To-Order. See the Factory Integrated Models section for more details.

Intel® Xeon® L7445 (2.13GHz/4-core/12MB/50W) Processor

NOTE: Offered as Configure-To-Order. See the Factory Integrated Models section for more details.

NOTE: All processors within the server must be identical.

NOTE: The BL680c G5 supports either two or four processors. One and three processors are not supported.

NOTE: The letter preceding the model number indicates the performance/wattage of the processor. The "E" denotes enterprise performance/wattage and the "L" denotes lower wattage.

NOTE: If upgrading an existing BL680c G5 server to a different processor, the server's ROM must be flashed to the latest BIOS prior to the upgrade.

Upgradeability

Upgradeable to four processors

NOTE: The server supports two or four processors. One and three processors are not supported.

NOTE: All processors within the server must be identical.

NOTE: If upgrading an existing BL680c G5 server to a different processor, the server's ROM must be flashed to the latest BIOS prior to the upgrade.

Cache Memory

Up to 16 MB level 3 cache memory

Chipset

Intel® 7300 chipset

Memory

Type PC2-5300 Fully Buffered DIMMs operating at 667 MHz

Standard 8GB (2 x 4GB)

Maximum 128GB (16 x 8GB DIMMs)

64GB (16 x 4GB Low Power DIMMs)

QuickSpecs

HP ProLiant BL680c Generation 5 (G5) Server Blade

Standard Features

Network Controllers

Four (4) embedded Gigabit Ethernet network adapter ports, plus (1) additional management network adapter port:

- Two (2) embedded NC373i Multifunction Gigabit Server Adapters with TCP/IP offload engine for Microsoft Windows, iSCSI boot, and optional accelerated iSCSI
- One (1) NC326i Dual Port Gigabit Server Adapter
- One (1) additional embedded 10/100 network adapter dedicated to iLO 2 management

NOTE: The Gigabit Ethernet adapters transmit from the server at 2000 Mbps, full duplex per port. However, within a Linux environment, the speed can be reduced or "throttled" using a feature available within the Linux operating system.

Once the adapter signal reaches the interconnect within the blade enclosure and communicates outside the blade enclosure to the LAN, the blade interconnect uplink types and settings determine the cable media, speed, duplex mode, and auto negotiation mode. Interconnects are available with Ethernet uplinks supporting 10/100/1000T, 10/100/1000 SFP, 1000 SX fiber, and 10Gb speeds.

Multifunction Networking

The embedded multifunction NC373i combines standard Gigabit Ethernet networking, TCP/IP offload engine (TOE) acceleration for Windows, iSCSI boot, and optional accelerated iSCSI into a single adapter.

- TOE moves the processing of data in the TCP protocol stack from the server CPU to the network card, freeing CPU cycles for other activities. With TOE, network communications are improved, and server efficiency is increased. The NC373i offers TOE for Microsoft® Windows.
 - The iSCSI boot allows the BL680c G5 to boot from a remote operating system (OS) image located on a storage area network (SAN) within a Red Hat or SUSE Linux environment. The BL680c G5 uses an iSCSI firmware image (iSCSI boot option ROM) making the remote disk drive appear as a local, bootable C: drive. The BL680c G5 is configured to connect to and boot from the iSCSI target disk on the network and download the OS image from the iSCSI target disk. The iSCSI boot option ROM is supplied by HP at no cost. The additional cost and mezzanine slot usage of an add-in iSCSI HBA card is not required. Additionally, the HP iSCSI boot solution includes scripts to significantly simplify the installation process.
-

I/O Expansion Slots

Three I/O expansion mezzanine slots; one Type I x4 PCIe (15 watts) and two x8 PCIe (25 watts).

Integrated Manageability

HP Integrated Lights-Out 2 (iLO 2) - (includes but not limited to functionality in Integrated Lights-Out 2 Standard Blade Edition (iLO 2))

QuickSpecs

HP ProLiant BL680c Generation 5 (G5) Server Blade

Standard Features

Storage Controller

The BL680c G5 includes an integrated Smart Array P400i Controller. The P400i is an x8 PCI Express serial attached SCSI (SAS) v1.0 embedded RAID controller and provides server performance and reliability through its support of advanced SCSI technology and RAID capabilities. The P400i includes 256MB of 40-bit ECC protected cache and supports RAID levels 0 (striping) and 1 (mirroring).

The controller supports both SAS and SATA hard drives letting you deploy drive technology as needed to fit your computing environment. The BL680c G5 provides two hot-plug drive bays for up to 1.0TB of SAS and 500GB of SATA storage.

Providing high availability data cache retention, the Smart Array P400i supports two battery backed write cache (BBWC) options:

- BBWC for the existing 25MB cache.
- Upgrade to 72-bit 512MB ECC protected cache with BBWC.

If additional direct or shared storage SAS or SATA drives are desired within the server blade enclosure, the BL680c G5 supports the SB40c Storage Blade through use of the HP PCI Express Mezzanine Pass-Thru Card installed in mezzanine slot 3. For additional information see the "Additional Options" section below and <http://h18006.www1.hp.com/products/storageworks/sb40c/index.html>

Maximum Internal Storage

One of the following depending on Model

Hot Plug Serial Attach SCSI (SAS)	1.0TB SAS	2 x 500GB SAS
Hot Plug Serial Attach (SATA)	1.0TB SATA	2 x 500GB SATA

Graphics

Integrated ATI RN-50 1280 x 1024 x 16M color (32 MB DDR1 memory)

Resolution	1280 x 1024, 16.7M, 64k, 256, 16
Color	1024 x 768, 16.7M, 64k, 256, 16
Depth	800 x 600, 16.7M, 64k, 256, 16
	640 x 480, 16.7M, 64k, 256, 16

Fibre Channel

Up to three 4 Gb Fibre Channel HBA mezzanines are supported ordered separately:

- Emulex LPe1105-HP 4Gb FC HBA for HP c-Class BladeSystem (403621-B21)
- QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem (403619-B21)

NOTE: For additional information on the optional 4 Gb Fibre Channel HBA mezzanines, see: <http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html>