QuickSpecs

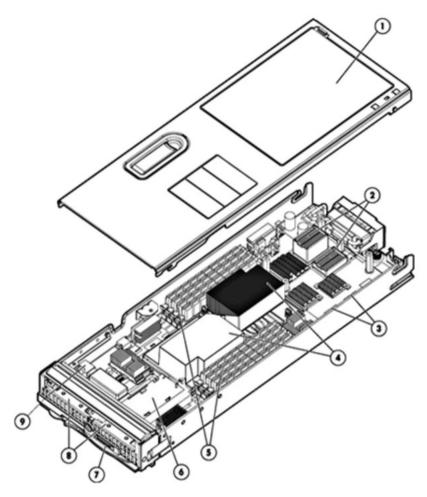*Overview*

HP ProLiant BL465c Generation 5 (G5) Server Blade

1. Access panel
2. Two (2) mezzanine I/O expansion slots
3. Two (2) multifunction Gigabit Ethernet network adapter ports
4. Up to two (2) AMD Opteron™ 2300 Series processors
5. Eight (8) PC2-5300 Registered DIMM (DDR2-667) or PC2-6400 Registered DIMM (DDR2-800) memory slots

6. Smart Array E200i storage controller (optional battery-backed write cache)
7. Local I/O connector
8. Two (2) small form factor (SFF) hot-plug hard drive bays
9. Internal USB connector

Overview

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
HP BladeSystem c-Class Interconnect and Mezzanine Components:
http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html
http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html

The HP ProLiant BL465c G5 delivers uncompromising performance and expandability, industry-leading management tools, and the latest technologies for dense compute environments.

HP ProLiant BL465c G5 server blade includes:

- Processor:
    - Up to two (2) Quad-Core AMD Opteron™ 2300 series processors
    - Supports up to 2.9 GHz, 2.2 GHz HyperTransport™; 512 KB Level 2 cache memory per core; 6 MB Level 3 cache
    - Supports up to 2.3 GHz, 1 GHz HyperTransport™; 512 KB Level 2 cache memory per core; 2 MB Level 3 cache
    - AMD Dual Dynamic Power Management™ for optimum performance and reduced power consumption
    - ServerWorks HT-1000 and HT-2100 chipsets
- Memory:
    - Up to 64 GB of memory, supported by eight (8) slots of PC2-5300 Registered DIMMs at 667 MHz or 32 GB of memory, supported by eight (8) slots of PC2-6400 Registered DIMMs at 800 MHz
    - Supporting memory interleaving (2:1)
- Storage Controller:
    - Integrated Smart Array E200i RAID controller with 64 MB cache (with optional battery-backed write cache with an upgrade to 128 MB cache (BBWC)). Supports RAID 0,1.
- Internal Drive Support:
    - Up to two (2) small form factor (SFF) SAS or SATA hot plug hard disk drives
- Network Controller:
    - Two (2) embedded NC370i Multifunction Gigabit Ethernet Server Adapters
    - One (1) additional 10/100 network adapter dedicated to iLO 2 Management
      NOTE: The Gigabit Ethernet adapters transmit from the server only at 2000 Mbps, full duplex per port. For more information, see the "Network Controller" item in Standards Features section.
- Mezzanine Support:
    - Two (2) I/O expansion mezzanine slots
    - Supports up to (2) mezzanine cards
        - Dual-Port Fibre Channel Mezzanine (4-Gb or 8-Gb) options for SAN connectivity
        - iSCSI Ethernet mezzanine option for optimized iSCSI connectivity
        - Ethernet server adapter mezzanine options for additional network ports
        - 4X DDR InfiniBand (IB) Mezzanine (20 Gb/s) options for low latency server interconnectivity (based on Mellanox technology)
        - I/O Accelerator mezzanine options for high transaction rate local storage
- Internal USB Support:

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- o HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports both Windows and Linux-based central management servers.
- o 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 Systems and Virtualization Software:
  - o Supports Windows, RHEL, SLES, OEL, Solaris, VMware ESX, Citrix XenServer
- Enclosures:
  - o HP offers three different c-Class server blade enclosures to meet your individual needs:
    - The HP BladeSystem c7000 rack enclosure is 10U high and holds up to sixteen (16) ProLiant BL465c G5 servers plugged vertically.
    - The HP BladeSystem c3000 rack enclosure is 6U high and holds up to eight (8) HP ProLiant BL465c G5 servers plugged horizontally.
    - The HP BladeSystem c3000 tower enclosure is designed with casters for sites without racks and holds up to eight (8) HP ProLiant BL465c G5 servers plugged vertically.
  - o Server blades, storage blades, and interconnect modules are all designed to fit into the c7000 and c3000 enclosures.
  - o For additional enclosure information, please see
    http://h18004.www1.hp.com/products/blades/components/enclosures/c-class/index.html.
- Warranty:
  - o This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to specific hard drive QuickSpecs for details.
    NOTE: Server warranty includes 3-year Parts, 3- year Labor, 3-year on-site support. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
    http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

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Standard Features

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

Processor	**Quad-Core Processors**
	AMD Opteron™ processor Model 2389 (2.9 GHz, 6 MB L3 Cache, 75W ACP)
	AMD Opteron processor Model 2387 (2.8 GHz, 6 MB L3 Cache, 75W ACP) NOTE: Offered through Configure-To-Order process only. See Factory Integration Models section for more details.
	AMD Opteron processor Model 2384 (2.7 GHz, 6 MB L3 Cache, 75W ACP)
	AMD Opteron processor Model 2382 (2.6 GHz, 6 MB L3 Cache, 75W ACP)
	AMD Opteron processor Model 2378 (2.4 GHz, 6 MB L3 Cache, 75W ACP)
	AMD Opteron processor Model 2356 (2.3 GHz, 2 MB L3 Cache, 75W ACP)
	AMD Opteron processor Model 2354 (2.2 GHz, 2 MB L3 Cache, 75W ACP) NOTE: Offered through Configure-To-Order process only. See Factory Integration Models section for more details.
	AMD Opteron processor Model 2352 (2.1 GHz, 2 MB L3 Cache, 75W ACP)
	Low Power AMD Opteron processor Model 2381 HE (2.5 GHz, 6 MB L3 Cache, 55W ACP)
	Low Power AMD Opteron processor Model 2376 HE (2.3 GHz, 6 MB L3 Cache, 55W ACP)
	Low Power AMD Opteron processor Model 2372 HE (2.1 GHz, 6 MB L3 Cache, 55W ACP) NOTE: Offered through Configure-To-Order process only. See Factory Integration Models section for more details.
	Low Power AMD Opteron processor Model 2347 HE (1.9 GHz, 2 MB L3 Cache, 55W ACP)
	NOTE: AMD Opteron 2300 series processors are 64-bit, quad-core, and support AMD Virtualization™. NOTE: Processor wattage references reflect Average CPU Power (ACP). For more information on ACP visit: http://www.amd.com/powernow.
Upgradeability	Upgradeable to dual (2) processors
Cache Memory	512 KB Level 2 cache memory per core 2 MB or 6 MB Level 3 cache memory
Chipset	ServerWorks HT-1000 and HT-2100

Standard Features

Memory	Type	PC2-5300 DDR2 Registered DIMMs at 667 MHz
		PC2-6400 DDR2 Registered DIMMs at 800 MHz
	Standard	2 GB (2 x 1 GB)
	Maximum	64 GB (8 x 8 GB) at 667 MHz
		32 GB (8 x 4 GB) at 800 MHz

NOTE: Memory must be installed in pairs.
NOTE: PC2-6400 DDR2 DIMMs are only supported with the AMD Opteron processor Models 2372 HE, 2376 HE, 2378, 2381 HE, 2382, 2384, 2387, 2389, 2425 HE, 2427, and 2435.
NOTE: PC2-5300 DDR2 DIMMs in 8 GB capacities are supported with the AMD Opteron processor Models 2347 HE, 2352, 2354, 2356, 2372 HE, 2376 HE, 2378, 2381 HE, 2382, 2384, 2387, 2389, 2425 HE, 2427, and 2435.
NOTE: PC2-5300 DDR2 DIMMs in 512 MB, 1 GB, 2 GB, and 4 GB capacities are only supported with the AMD Opteron processor Models 2347 HE, 2352, 2354 and 2356.

Network Controller

Two (2) embedded NC370i Multifunction Gigabit Ethernet Server Adapters with TCP/IP Offload Engine, iSCSI boot, and optional accelerated iSCSI

One (1) additional 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.
NOTE: The iSCSI offload feature of the embedded multifunction adapter requires the HP Accelerated iSCSI Pack. For more information, please see the QuickSpecs at
http://h18000.www1.hp.com/products/quickspecs/12466_div/12466_div.html

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Multifunction Networking

The embedded multifunction NC370i combines standard Gigabit Ethernet networking, TCP/IP offload engine (TOE) acceleration, 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 NC370i offers TOE for Microsoft® Windows 2000 and 2003 environments.
- The iSCSI network boot (iSCSI boot) allows the BL465c 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 BL465c G5 uses an iSCSI firmware image (iSCSI boot option ROM) making the remote disk drive appear as a local, bootable C: drive. The BL465c 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.

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Standard Features

Storage Controller	Smart Array E200i Controller	64 MB memory module supports RAID 0,1 Available upgrades: 128 MB with Battery-backed write cache	
Maximum Internal Storage	Hot Plug SAS Hot Plug SATA	1TB SAS 1TB SATA	2 x 500GB Serial SCSI 2 x 500GB Serial ATA
Graphics	Integrated ATI RN-50 1280 x 1024 x 16M color (32 MB DDR1 memory)		
Graphics Resolution Supported	Resolution Color Depths	1280 x 1024, 16.7M, 64k, 256.16 1024 x 768, 16.7M, 64k, 256, 16 800 x 600, 16,7M, 64k, 256, 16 640 x 480, 16,7M, 64k, 256, 16	

Fibre Channel Support

Two (2) optional dual-port Fibre Channel HBAs are supported by the HP ProLiant BL465c G5. Each mezzanine circuit board connects directly to the server blade system board. These Fibre Channel HBAs are available via option kits and must be ordered separately.

HBA mezzanine card option kits:

Emulex LPe1105 4Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem (PN 403621-B21)

- Based on the same field-proven ASIC, firmware, and driver technology as Emulex's renowned LPe1150 HBA, the Emulex LPe1105-HP is fully driver compatible with all Emulex HBAs

QLogic QMH2462 4Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem (PN 403619-B21)

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

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

- Optimal performance utilizing PCI Express
- 4/2/1Gb/s auto negotiating speeds (4Gb HBAs)
- Dual-ports for redundant path connections
- Up to two FC HBAs per server blade providing redundant FC HBA support
- Optimized for HP StorageWorks and supported by third party SAN vendors
- Support for Microsoft® Windows® and Linux operating system environments