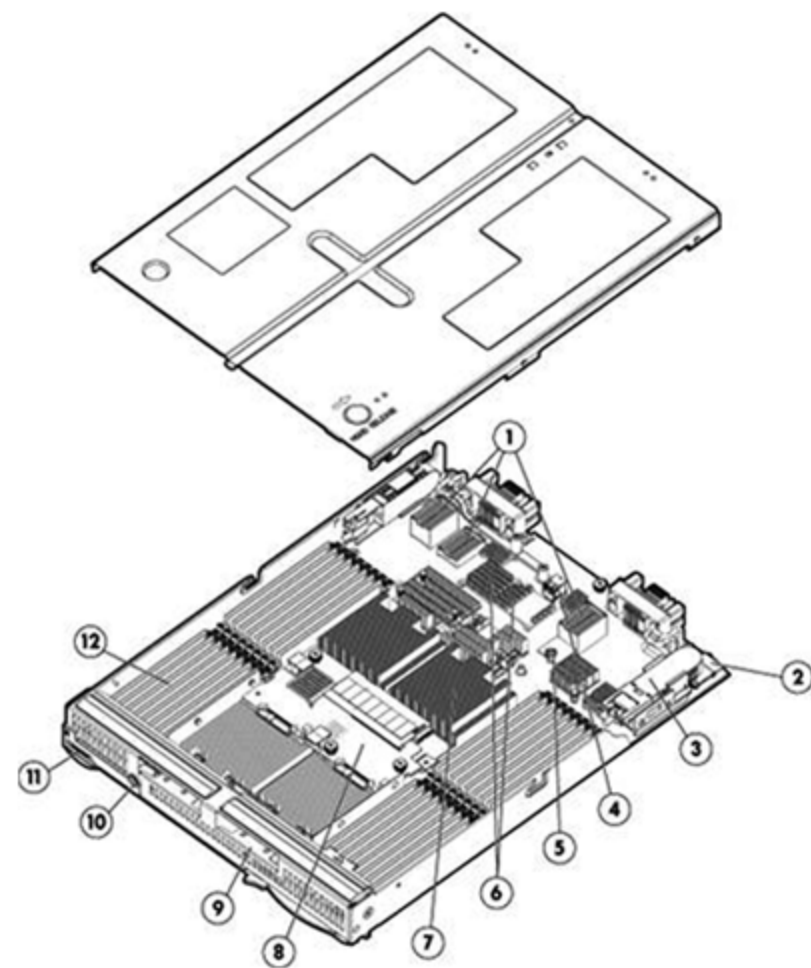


Overview



HP ProLiant BL685c G6 Server Blade

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Three (3) mezzanine I/O expansion slots 2. Internal SD card slot 3. Optional Smart Array P400i battery 4. Internal USB connector 5. Optional Trusted Platform Module (TPM) 6. Two (2) embedded dual port Flex-10 10GbE multifunction server adapters | <ul style="list-style-type: none"> 7. Up to four (4) AMD Opteron™ 8000 series processors 8. Smart Array P400i storage controller (available as an option in factory integrated models) 9. Two (2) small form factor (SFF) hot-plug hard drive bays 10. System power button and LED 11. Local I/O Connector 12. Thirty-two (32) PC2-5300 Registered DIMM (DDR2-667) or PC2-6400 Registered DIMM (DDR2-800) memory slots |
|--|--|

What's New

- Support for HP NC551m Dual Port FlexFabric 10Gb Converged Network Adapter

At A Glance

This document covers the HP ProLiant BL685c G6 server blade only. For more information on HP BladeSystem c-Class Enclosures and HP BladeSystem c-Class Interconnects, please see the following QuickSpecs:

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

Engineered with a large memory footprint and more I/O than any other four socket server blade, the BL685c G6 eliminates the barriers to server consolidation and delivers outstanding performance for compute-intensive applications.

HP ProLiant BL685c G6 server blade includes:

- **Processor:**
 - Up to four (4) Six-Core AMD Opteron™ 8400 Series processors
 - Supports up to 2.6 GHz, 2.2 GHz HyperTransport™; 512 KB Level 2 cache memory per core; 6 MB Level 3 cache
 - Up to four (4) Quad-Core AMD Opteron 8300 Series processors

Overview

- Supports up to 2.9 GHz, 2.2 GHz HyperTransport; 512 KB Level 2 cache memory per core; 6 MB Level 3 cache
 - AMD Dual Dynamic Power Management™ for optimum performance and reduced power consumption
 - ServerWorks HT-2100, HT-1000 chipsets
- **Memory:**
 - Up to 256 GB of memory, supported by thirty-two (32) slots of PC2-5300 Registered DIMMs or 128 GB of memory, supported by thirty-two (32) slots of PC2-6400 Registered DIMMs
 - Supporting memory interleaving (2:1)
 - NOTE:** The memory bus will operate at 800 MHz with four (4) or fewer DIMMs per processor, 667 MHz with six (6) DIMMs per processor, and 533 MHz with eight (8) DIMMs per processor.
- **Storage Controller:**
 - Smart Array P400i RAID controller with 512 MB cache (optional battery to enable battery-backed write cache (BBWC). Supports RAID 0,1.
 - NOTE:** The HP Smart Array P400i controller is required for all blades that support hot plug hard disk drives. For customers who choose to configure a driveless model via CTO or choose to use Solid State Drives, a Smart Array P400i controller is not required. See Factory Integrated Models section for more information.
 - HP Embedded SATA Controller
- **Internal Drive Support:**
 - Up to two (2) small form factor (SFF) SAS or SATA hot plug hard disk drives or SATA solid state drives, or
 - Up to two (2) non-hot plug SATA SSDs
 - NOTE:** Simultaneous operation of hot plug drives and non-hot plug solid state drives is not supported.
- **Network Controller:**
 - Two (2) embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapters
 - NOTE:** Flex-10 capability requires the use of an HP Virtual Connect Flex-10 10Gb Ethernet module. Learn more at: www.hp.com/go/virtualconnect.
 - NOTE:** Each port is autosensing 1Gb/10Gb, and can interoperate with 1Gb HP BladeSystem c-Class interconnect components.
 - One (1) additional embedded 10/100 network adapter dedicated to iLO 2 management
- **Mezzanine Support:**
 - Three (3) I/O expansion mezzanine slots.
 - Supports up to three (3) 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 Media Support:**
 - One (1) internal USB 2.0 connector for security key devices and USB drive key
 - One (1) internal SD-HC card slot
- **Trusted Platform Module:**
 - One (1) internal TPM 1.2 module connector
- **Form Factor:**
 - HP ProLiant BL685c G6 server blade plugs into the BladeSystem c3000 and c7000 enclosures
- **Infrastructure Management:**
 - 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 Systems and Virtualization Software:**
 - Supports Windows, RHEL, SLES, OEL, Solaris, VMware and Citrix XenServer
- **Enclosures:**
 - HP offers three (3) different c-Class server blade enclosures to meet your individual needs:
 - The HP BladeSystem c7000 rack enclosure is 10U high and holds up to eight (8) ProLiant BL685c G6 servers plugged vertically.
 - The HP BladeSystem c3000 rack enclosure is 6U high and holds up to four (4) HP ProLiant BL685c G6 servers plugged horizontally.
 - The HP BladeSystem c3000 tower enclosure is designed with casters for sites without racks and holds up to four (4) HP ProLiant BL685c G6 servers plugged vertically.
 - 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>.
 - NOTE:** For optimal cooling and system performance the BL685c G6 requires the c7000 enclosure to be configured with 10 fans and the c3000 enclosure to be configured with 6 fans.
- **Warranty:**
 - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase.

Overview

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>

Standard Features

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

Processor	<p>Six-Core Processors</p> <p>AMD Opteron™ processor Model 8435 (2.6 GHz, 6 MB L3 Cache, 75W ACP)</p> <p>AMD Opteron processor Model 8431 (2.4 GHz, 6 MB L3 Cache, 75W ACP)</p> <p>Low Power AMD Opteron processor Model 8425 HE (2.1 GHz, 6 MB L3 Cache, 55W ACP)</p> <p>NOTE: Offered through Configure-To-Order process only. See Factory Integration Models section for more details.</p> <p>Quad-Core Processors</p> <p>AMD Opteron processor Model 8389 (2.9 GHz, 6 MB L3 Cache, 75W ACP)</p> <p>AMD Opteron processor Model 8387 (2.8 GHz, 6 MB L3 Cache, 75W ACP)</p> <p>AMD Opteron processor Model 8382 (2.6 GHz, 6 MB L3 Cache, 75W ACP)</p> <p>Low Power AMD Opteron processor Model 8381 HE (2.5 GHz, 6 MB L3 Cache, 55W ACP)</p> <p>NOTE: Offered through Configure-To-Order process only. See Factory Integration Models section for more details.</p> <p>NOTE: AMD Opteron 8400 series processors are 64-bit, six-core, and support AMD Virtualization™.</p> <p>NOTE: AMD Opteron 8300 series processors are 64-bit, quad-core, and support AMD Virtualization™.</p> <p>NOTE: Processor wattage references reflect Average CPU Power (ACP). For more information on ACP visit: http://www.amd.com/powernow.</p>						
Upgradeability	<p>Upgradeable to quad (4) processors</p> <p>NOTE: The HP ProLiant BL685c G6 only supports two (2) and four (4) processor configurations.</p>						
Cache Memory	<p>512 KB Level 2 cache memory per core</p> <p>6 MB Level 3 cache memory</p>						
Chipset	<p>ServerWorks HT-2100, HT-1000</p>						
Memory	<table border="0"> <tr> <td>Type</td> <td>PC2-5300 DDR2 Registered DIMMs at 667 MHz PC2-6400 DDR2 Registered DIMMs at 800 MHz</td> </tr> <tr> <td>Standard</td> <td>8 GB (4 x 2 GB)</td> </tr> <tr> <td>Maximum</td> <td>256 GB (32 x 8 GB) at 533 MHz</td> </tr> </table> <p>NOTE: Memory must be installed in pairs.</p> <p>NOTE: DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.</p> <p>NOTE: The memory bus will operate at 800 MHz with four (4) or fewer DIMMs per processor, 667 MHz with six (6) DIMMs per processor, and 533 MHz with eight (8) DIMMs per processor.</p>	Type	PC2-5300 DDR2 Registered DIMMs at 667 MHz PC2-6400 DDR2 Registered DIMMs at 800 MHz	Standard	8 GB (4 x 2 GB)	Maximum	256 GB (32 x 8 GB) at 533 MHz
Type	PC2-5300 DDR2 Registered DIMMs at 667 MHz PC2-6400 DDR2 Registered DIMMs at 800 MHz						
Standard	8 GB (4 x 2 GB)						
Maximum	256 GB (32 x 8 GB) at 533 MHz						
Network Controller	<p>Two (2) embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapters</p> <p>NOTE: Flex-10 capability requires the use of an HP Virtual Connect Flex-10 10Gb Ethernet module. Learn more at: www.hp.com/go/virtualconnect.</p> <p>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</p> <p>One (1) additional 10/100 network adapter dedicated to iLO 2 Management</p>						
I/O Expansion Slots	<p>Three (3) I/O expansion mezzanine slots (All x8 PCI Express)</p>						
Integrated Manageability	<p>HP Integrated Lights-Out 2 (iLO 2) management processor</p>						

Standard Features

Storage Controller	HP Smart Array P400i Controller	512MB memory module supports RAID 0,1 Available upgrades: Battery-backed write cache option
	NOTE: The HP Smart Array P400i controller is required for all blades that support hot plug hard disk drives. For customers who choose to configure a driveless model via CTO or choose to use Solid State Drives, a HP Smart Array P400i controller is not required. See Factory Integrated Models section for more information.	
	HP Embedded SATA Controller	Supports non-hot plug SATA SSD only

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

Graphics	Integrated ATI RN-50 1280 x 1024 x 16M color (32 MB DDR memory)
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Graphics Resolution Supported	Resolution	Color Depths	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 Three optional dual-port Fibre Channel HBAs are supported by the HP ProLiant BL685c G6. 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-HP 4Gb FC HBA (403621-B21)

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

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

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

QLogic QMH2462 4Gb FC HBA (403619-B21)

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

QLogic QMH2562 8Gb FC HBA (451871-B21)

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

Brocade 804 8Gb FC HBA for HP BladeSystem c-Class (590647-B21)

- Application oriented Quality of Service (AQoS) providing the ability to configure, prioritize, and optimize traffic flows from virtual machines and/or applications to the target port

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

- Optimal performance utilizing PCI Express
- 4/2/1Gb/s auto negotiating speeds (4Gb HBAs)
- 8/4/2Gb/s auto negotiation speeds (8Gb HBAs)
- Dual-ports for redundant path connections
- Up to two FC HBAs per server blade providing redundant FC HBA support
- Optimized for HP StorageWorks and supported by third party SAN vendors
- Support for Microsoft® Windows® and Linux operating system environments

Compatible SAN HP ProLiant BL685c G6 server blades are optimized for HP StorageWorks MSA, EVA, and XP HP ProLiant BL685c G6 server blades are compatible with select third party SANs (please see blade storage page for more details:
<http://h18004.www1.hp.com/products/blades/components/c-class-sans.html>

Standard Features

HP Virtual Connect HP Virtual Connect simplifies server connectivity to LANs and SANs, and reduces costs. Unique HP Flex-10 technology makes maximum use of 10-Gb Ethernet bandwidth by allowing multiple ports within a single Industry Standard connection that can be dynamically tuned to meet individual server requirements. HP Virtual Connect Enterprise Manager (VCEM) provides a central console to administer connections and workloads for thousands of servers. For more information on Virtual Connect Ethernet, Fibre Channel and management options see: www.hp.com/go/virtualconnect

HP Insight management software

HP Insight Foundation Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.

HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems:

www.hp.com/go/foundation.

The foundation pack includes:

- HP SmartStart
- HP Management
- HP ProLiant Firmware Maintenance

SmartStart version supported (minimum): SmartStart 8.15

<http://www.hp.com/servers/smartstart>

HP Integrated Lights-Out (iLO) HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: www.hp.com/go/iLO

HP Insight Control HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management servers: HP Insight Control for Linux, and HP Insight Control. See www.hp.com/go/insightcontrol

HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: <http://www.hp.com/services/insight>.

HP Insight Dynamics for ProLiant 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. As a powerfully integrated by design toolkit to accelerate complex technology projects and simplify daily operations that ultimately enable IT Staff personnel to dynamically keep pace with the organizations changing business requirements. It enables them to plan capacity and power continuously, balance across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location.

NOTE: For more information, visit:

<http://www.hp.com/go/insightdynamics>

Standard Features

Operating Systems and Microsoft Windows Server

Virtualization Software Microsoft Windows Server Hyper-V

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

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/supportos> and our driver download page <http://www.hp.com/support/BL685cG6>

Availability

Dual-Port Fibre Channel Mezzanine Card for redundant SAN connection
 Two (2) embedded dual-port 10Gb Ethernet adapters for redundant LAN connections
 Two (2) hot-plug SAS/SATA hard drive bays and integrated RAID (Smart Array P400i) controller (Battery-backed write cache is optional.)
 Redundant ROM on each server blade
 Multiple mezzanine I/O expansion
 ECC Memory
 Network adapter teaming (network fault tolerance, transmit load balancing, switch-assisted load balancing)

Industry Standard Compliance

ACPI 2.0 Compliant
 PCI 2.2 Compliant
 WOL Support
 Microsoft® Logo certifications
 USB 2.0 Support

Security

Power-on password
 Administrator's password
 Integrated Lights-Out 2 has 12 customizable user accounts and SSL encryption
 Integrated Lights-Out 2 can be disabled via a Global Setting

Security - Trusted Platform Module

The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline.

NOTE: For more information about TPM, including a white paper, go to www.hp.com/go/TPM.
NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.
NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAXxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>.

Standard Features

HP Enterprise Configurator

The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.
<http://www.hp.com/products/configurator>.

Service and Support

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

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

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

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

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

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

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

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

For a complete listing of service offerings and information visit:

<http://www.hp.com/services/bladestystemsolutions>

<http://h20219.www2.hp.com/services/us/en/warranty/carepack-servers-proliant.html>

Models

Six-Core Models

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

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

<p>HP ProLiant BL685c G6 Processor(s) 8435 6C, 8G (2P) 539815-B21</p>	<p>(2) AMD Opteron™ processor Model 8435 (2.6 GHz) (2) AMD Opteron processor Model 8431 (2.4 GHz)</p>
<p>Cache Memory</p>	<p>512 KB Level 2 cache memory per core 6 MB Level 3 cache memory</p>
<p>HP ProLiant BL685c G6 8431 6C, 8G (2P) 539818-B21</p>	<p>8 GB (4 x 2 GB) PC2-6400, Registered DDR2-800</p>
<p>Memory</p>	<p>8 GB (4 x 2 GB) PC2-6400, Registered DDR2-800</p>
<p>Network Adapter</p>	<p>Two (2) embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapters and one (1) additional 10/100 server adapter dedicated to iLO 2 management</p>
<p>Storage Controller</p>	<p>HP Smart Array P400i Controller with 512MB (optional battery-backed write cache)</p>
<p>Hard Drives</p>	<p>No drives included; (2) SFF SAS/SATA drive bays</p>
<p>Internal Storage</p>	<p>Up to 1TB SAS Up to 1TB SATA</p>
<p>Optical Drive</p>	<p>None</p>
<p>Form Factor</p>	<p>Up to four (4) full-height blades supported in the HP BladeSystem c3000 Enclosure Up to eight (8) full-height blades supported in HP BladeSystem c7000 Enclosure</p>

Quad-Core Models

<p>HP ProLiant BL685c G6 Processor(s) 8389 QC, 8G (2P) 491336-B21</p>	<p>(2) AMD Opteron processor Model 8389 (2.9 GHz) (2) AMD Opteron processor Model 8387 (2.8 GHz)</p>
<p>Cache Memory</p>	<p>512 KB Level 2 cache memory per core 6 MB Level 3 cache memory</p>
<p>HP ProLiant BL685c G6 8387 QC, 8G (2P) 491337-B21</p>	<p>8 GB (4 x 2 GB) PC2-6400, Registered DDR2-800</p>
<p>Memory</p>	<p>8 GB (4 x 2 GB) PC2-6400, Registered DDR2-800</p>
<p>Network Adapter</p>	<p>Two (2) embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapters and one (1) additional 10/100 server adapter dedicated to iLO 2 management</p>
<p>Storage Controller</p>	<p>HP Smart Array P400i Controller with 512MB (optional battery-backed write cache)</p>
<p>Hard Drives</p>	<p>No drives included; (2) SFF SAS/SATA drive bays</p>
<p>Internal Storage</p>	<p>Up to 1TB SAS Up to 1TB SATA</p>
<p>Optical Drive</p>	<p>None</p>
<p>Form Factor</p>	<p>Up to four (4) full-height blades supported in the HP BladeSystem c3000 Enclosure Up to eight (8) full-height blades supported in HP BladeSystem c7000 Enclosure</p>

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.

NOTE: HP does not allow factory integration of options into standard models listed above.

Configure-to-order servers must start with a CTO Chassis.

NOTE: FIO indicates that this option is available only as a Factory Installable Option.

Step 1: Base Server Blade Configuration

HP Models	HP ProLiant BL685c G6 CTO Blade (North America)	491338-B21
	Two (2) embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapters and one (1) additional 10/100 server adapter dedicated to iLO 2 management	
	Two (2) small form factor (SFF) SAS/SATA hot plug hard drive bays	
	Two (2) non-hot plug internal SATA SSD drive bays	
	HP Embedded SATA Controller	
	HP Integrated Lights-Out 2 (iLO 2) management processor	

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

HP Processors	<p>For dual (2) processor configurations choose (one of the following):</p> <p>NOTE: If four (4) processors are desired, select one xxxxxx-L21 and one xxxxxx-B21.</p>	
	AMD Opteron™ processor Model 8435 (2.6 GHz, 6 MB L3 Cache, 75W ACP) Processor Option Kit, FIO Base	539816-L21
	AMD Opteron processor Model 8431 (2.4 GHz, 6 MB L3 Cache, 75W ACP) Processor Option Kit, FIO Base	539819-L21
	AMD Opteron processor Model 8389 (2.9 GHz, 6 MB L3 Cache, 75W ACP) Processor Option Kit, FIO Base	491341-L21
	AMD Opteron processor Model 8387 (2.8 GHz, 6 MB L3 Cache, 75W ACP) Processor Option Kit, FIO Base	491343-L21
	AMD Opteron processor Model 8382 (2.6 GHz, 6 MB L3 Cache, 75W ACP)	591872-L21
	Low Power AMD Opteron processor Model 8425 HE (2.1 GHz, 6 MB L3 Cache, 55W ACP) Processor Option Kit, FIO Base	539821-L21
	Low Power AMD Opteron processor Model 8381 HE (2.5 GHz, 6 MB L3 Cache, 55W ACP) Processor Option Kit, FIO Base	508864-L21
HP Memory	HP 2GB (2x1GB) Single Rank PC2-6400 (DDR2-800) Registered Memory Kit	497763-B21
	HP 4GB (2x2GB) Single Rank PC2-6400 (DDR2-800) Registered Memory Kit	497765-B21
	HP 8GB (2x4GB) Dual Rank PC2-6400 (DDR2-800) Registered Memory Kit	497767-B21
	HP 8GB (2x4GB) Dual Rank x4 PC2-6400 (DDR2-800) Registered Low Power Memory Kit	504351-B21
	HP 16GB (2x8GB) Dual Rank PC2-5300 (DDR2-667) Registered Memory Kit	408855-B21
	HP 64GB (8x8GB) Dual Rank PC2-5300 (DDR2-667) Registered Memory Kit	495605-B21
	NOTE: Must be installed in pairs.	
	NOTE: DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.	
	NOTE: The memory bus will operate at 800 MHz with four (4) or fewer DIMMs per processor, 667 MHz with six (6) DIMMs per processor, and 533 MHz with eight (8) DIMMs per processor.	

Step 3: Choose Additional Factory Integration Options

HP Storage Controller	HP Smart Array P400i Controller for BL685c G6, FIO	512867-B21
	NOTE: The Smart Array P400i controller is required for all blades that support hot plug hard disk drives.	
	HP Smart Array P700m/512 Battery Option Kit	452348-B21
	NOTE: The Smart Array battery option kit is required to enable battery-backed write cache (BBWC).	

Configuration Information - Factory Integrated Models

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional "Core Options" and "Additional Options" please see the options sections below. For additional options, including server blade enclosures interconnect options and power subsystem options; please see the following QuickSpecs:

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

and HP BladeSystem c-Class Interconnect Components QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html.

Core Options

HP Ethernet Mezzanine Gigabit Ethernet Mezzanines

Options		
	HP NC325m PCI Express Quad Port 1Gb Server Adapter for c-Class BladeSystem	416585-B21
	HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem	406771-B21
	HP NC360m Dual Port 1GbE BL-c Adapter	445978-B21
	HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21
	HP NC382m Dual Port 1GbE Multifunction BL-c Adapter	453246-B21
	QLogic QMH4062 1GbE iSCSI Adapter for HP BladeSystem c-Class	488074-B22

10 Gigabit Ethernet Mezzanines

	HP NC522m Dual Port Flex-10 10GbE Multifunction BL-c Adapter	467801-B21
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NOTE: The NC522m requires a minimum of 2 GB of server memory.
NOTE: The NC522m supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 enabled module and will link with all current 1Gb switches at 1Gb.

	HP NC532m Dual Port Flex-10 10GbE Multifunction BL-c Adapter	467799-B21
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NOTE: The NC532m requires a minimum of 2 GB of server memory.
NOTE: The NC532m supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 enabled module and will link with all current 1Gb switches at 1Gb.

	HP NC542m Dual Port Flex-10 10GbE BLc Adapter	539857-B21
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NOTE: The NC542m requires a minimum of 2 GB of server memory.
NOTE: The NC542m supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 device. The NC542m will only support 1000Mbps when connected to a 1Gb Ethernet interconnect.

	HP NC550m 10GbE 2-port PCIe x8 Flex-10 Ethernet Adapter	581204-B21
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NOTE: The NC550m network adapter card is required for each server blade connecting to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 3-4 (HP BladeSystem c3000 Enclosure)
NOTE: The NC550m requires a minimum of 2 GB of server memory.
NOTE: The NC550m supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 device. The NC550m will only support 1000Mbps when connected to a 1Gb Ethernet interconnect.

	HP NC551m Dual Port FlexFabric 10Gb Converged Network Adapter	580151-B21
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NOTE: The NC551m network adapter card is required for each server blade connecting to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 3-4 (HP BladeSystem c3000 Enclosure)
NOTE: The NC551m requires a minimum of 2 GB of server memory.
NOTE: The NC551m supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 device. The NC551m supports 1000Mbps when connected to a 1Gb Ethernet interconnect.
NOTE: The ROM Based Setup Utility (RBSU) feature allows for the configuring of a FlexFabric Adapter to any of the supported protocols. For example iSCSI to FCoE (Fibre Channel over Ethernet). Note that a HP Virtual Connect profile takes precedence over the setting in this menu. Also, some FlexFabric Adapters may require that network boot be enabled in order to configure the protocol. If the protocol is configured without enabling network boot with certain FlexFabric Adapters, the protocol may not take effect. Once the protocol has taken effect on the first boot after configuring this option, network boot may be disabled if desired.

HP Fibre Channel Mezzanine Options

4Gb Fibre Channel Mezzanines

	Emulex LPe1105 FC Dual Channel 4Gb, PCI-E-to-Fibre Channel Host Bus Adapter	403621-B21
	QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21

8Gb Fibre Channel Mezzanines

	HP BLc Emulex LPe1205- 8Gb FC HBA for HP c-Class BladeSystem	456972-B21
	QLogic QMH2562 8Gb FC HBA for HP BladeSystem c-Class	451871-B21
	Brocade 804 8Gb FC HBA for HP BladeSystem c-Class	590647-B21

Core Options

HP Processors	AMD Opteron™ processor Model 8435 (2.6 GHz, 6 MB L3 Cache, 75W ACP) Processor Option Kit	539816-B21
	AMD Opteron processor Model 8431 (2.4 GHz, 6 MB L3 Cache, 75W ACP) Processor Option Kit	539819-B21
	AMD Opteron processor Model 8389 (2.9 GHz, 6 MB L3 Cache, 75W ACP) Processor Option Kit	491341-B21
	AMD Opteron processor Model 8387 (2.8 GHz, 6 MB L3 Cache, 75W ACP) Processor Option Kit	491343-B21
	AMD Opteron processor Model 8382 (2.6 GHz, 6 MB L3 Cache, 75W ACP)	591872-B21
	Low Power AMD Opteron processor Model 8425 HE (2.1 GHz, 6 MB L3 Cache, 55W ACP) Processor Option Kit	539821-B21
	Low Power AMD Opteron processor Model 8381 HE (2.5 GHz, 6 MB L3 Cache, 55W ACP) Processor Option Kit	508864-B21

NOTE: HP ProLiant BL685c G6 processor option kits contain two (2) processors.

NOTE: The ProLiant BL685c G6 only supports two (2) and four (4) processor configurations.

HP Memory	HP 2GB (2x1GB) Single Rank PC2-6400 (DDR2-800) Registered Memory Kit	497763-B21
	HP 4GB (2x2GB) Single Rank PC2-6400 (DDR2-800) Registered Memory Kit	497765-B21
	HP 8GB (2x4GB) Dual Rank PC2-6400 (DDR2-800) Registered Memory Kit	497767-B21
	HP 8GB (2x4GB) Dual Rank x4 PC2-6400 (DDR2-800) Registered Low Power Memory Kit	504351-B21
	HP 16GB (2x8GB) Dual Rank PC2-5300 (DDR2-667) Registered Memory Kit	408855-B21
	HP 64GB (8x8GB) Dual Rank PC2-5300 (DDR2-667) Registered Memory Kit	495605-B21

NOTE: Must be installed in pairs.

NOTE: DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.

NOTE: The memory bus will operate at 800 MHz with four (4) or fewer DIMMs per processor, 667 MHz with six (6) DIMMs per processor, and 533 MHz with eight (8) DIMMs per processor.

HP Hard Drives

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

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

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 300GB 3G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	492620-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
HP 146GB 3G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	504062-B21
HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
HP 146GB 3G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418367-B21
HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
HP 72GB 3G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418371-B21

NOTE: Please see the for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)

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

HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507610-B21
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SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	530888-B21

Core Options

SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	460355-B21
HP 120GB 1.5G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	458924-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html
(Worldwide)

Solid State Drives (SSD)

HP 32GB 1.5G SATA SFF (2.5-inch) Non-hot Plug Entry 3yr Warranty Solid State Drive	461201-B21
HP 64GB 1.5G SATA SFF (2.5-inch) Non-hot Plug Entry 3yr Warranty Solid State Drive	461203-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13121_div/13121_div.html

Additional Options

HP Insight software	HP Insight Control	
	HP Insight Control, No Media, Electronic License including 1 year of 24x7 Technical Support and Updates	T9074BAE
	HP Insight Control, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates	452148-B22
	HP Insight Software Media Kit	436222-B21
	<p>NOTE: Insight Software DVD media without licenses. Contains Insight Control, Insight Dynamics and Virtual Connect Enterprise Manager. Uses an integrated installer to perform quick and accurate software installation and updates.</p> <p>NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates.</p> <p>NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key, and is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.</p> <p>NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.</p> <p>NOTE: For additional license kits please see the Insight Control QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12631_div/12631_div.html</p>	
	HP Insight Control for Linux	
	HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates	TC209A
	HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic	TC213AAE
	<p>NOTE: This part number can be purchased as a single license or as multiple licenses with a single activation key. Customer will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.</p> <p>NOTE: Electronic LTUs are only available through limited points of sales; if not available, order a printed license entitlement certificate instead.</p>	
	HP Insight Control for Linux, Media pack (DVD) - No licenses included	TC208A
	<p>NOTE: Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately.</p> <p>NOTE: This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from: http://www.hp.com/go/ic-linux (click on Download button).</p> <p>NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/ic-linux (click on Download button).</p> <p>NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.</p> <p>NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.</p> <p>NOTE: Tracking licenses may only be purchased by customers that have implemented an activation key agreement (AKA) with HP. For more information on Activation Key Agreements please visit: http://h18013.www1.hp.com/products/servers/proliantessentials/license/options.html</p>	
	HP Integrated Lights-Out (iLO) Advanced for BladeSystem Remote Management	
	HP Integrated Lights-Out (iLO) Advanced for BladeSystem (1) Server License/(1) Key for BladeSystem, No Media, including 1 year of 24x7 Technical Support and Updates	512488-B21
	<p>NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates.</p> <p>NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key, and is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.</p> <p>NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.</p> <p>NOTE: For additional license kits, including electronic delivery options, please see the HP Integrated Lights-Out 2 (iLO 2) QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html</p>	
	HP Insight Control server deployment	

Additional Options

HP Insight Control server deployment Electronic License including 1 year 24x7 Technical Support and Updates T9082AAE

HP Insight Control server deployment 1-Server License including 1 year 24x7 Technical Support and Updates 452151-B21

NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at:

<http://www.hp.com/go/insightupdates>.

NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key, and is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.

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

NOTE: For additional license kits please see the Insight Control QuickSpecs at:

http://h18004.www1.hp.com/products/quickspecs/12631_div/12631_div.html

HP Security - TPM HP Trusted Platform Module (TPM) Kit 488069-B21

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.

HP Storage Controller HP Smart Array P700m/512 Controller 508226-B21

HP Smart Array P700m/256 Controller 507925-B21

Optional Upgrade

HP Smart Array P700m/512 Battery Option Kit 452348-B21

NOTE: The Smart Array battery option kit is required to enable battery-backed write cache (BBWC).

NOTE: Please see the QuickSpecs for Technical Specifications and additional configuration information at:

http://h18000.www1.hp.com/products/quickspecs/13175_div/13175_div.html (Worldwide)

HP I/O Expansion Options HP StorageWorks 80GB IO Accelerator for BladeSystem c-Class AJ876A

HP StorageWorks 160GB IO Accelerator for BladeSystem c-Class AJ877A

HP StorageWorks 320GB IO Accelerator for BladeSystem c-Class AJ878A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13220_div/13220_div.html

HP c-Class Mezzanines HP InfiniBand Mezzanine Options HP 4X DDR IB Dual Port Mezzanine HCA for HP BladeSystem c-Class 448262-B21

HP Ultrium Tape Blades HP StorageWorks SB1760c Tape Blade AQ697A

NOTE: LTO-4 Ultrium tape technology

HP StorageWorks SB920c Tape Blade AJ401A

NOTE: LTO-3 Ultrium tape technology

HP StorageWorks Ultrium 448c Tape Blade 440947-B21

NOTE: LTO-2 Ultrium tape technology

NOTE: Please see the QuickSpecs for Technical Specifications and additional configuration information at:

http://h18000.www1.hp.com/products/quickspecs/12729_div/12729_div.html

NOTE: Please visit the BladeSystem c-Class enclosure QuickSpecs for a complete list of recommended data protection solutions for BladeSystem c-Class enclosures: <http://h18004.www1.hp.com/products/blades/bladepystem/index.html>

HP StorageWorks SB40c Storage Blade HP StorageWorks SB40c Storage Blade 411243-B21

HP StorageWorks SB40c Storage Blade with HP LeftHand VSA bundle AT459A

NOTE: Please see the QuickSpecs for Technical Specifications and additional configuration information at:

http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html (Worldwide)

Additional Options

HP Expansion Blade	<p>HP PCI Expansion Blade 448018-B21</p> <p>NOTE: Ships with one pre-installed PCI-X connect board. Also includes one PCIe connect board which requires installation.</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional configuration information at: http://h18000.www1.hp.com/products/quickspecs/12753_div/12753_div.html</p>
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HP USB and SD Options	<p>SD Options</p> <p>HP 4GB SD Flash Media Kit 580387-B21</p> <p>NOTE: Blank SD media device is supported for use with VMware and Citrix. USB media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization.</p> <p>USB Options</p> <p>HP 2GB USB Flash Media Drive Key Kit 608447-B21</p> <p>NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.</p> <p>HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) DC172B</p> <p>HP USB 04 Standard Keyboard DT528A#ABA</p>
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HP Care Pack Services	<p>NOTE: The HP Care Pack service part numbers below for ProLiant BL c-Class server blades, cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server.</p> <p>Hardware Services On-site Service</p> <p>4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic UK108E</p> <p>4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UK109E</p> <p>6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UK110E</p>
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Memory

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

DIMM installation guidelines:

1. All DIMMs must be PC2-5300 Registered DDR2 DIMMs (667 MHz) or PC2-6400 Registered DDR2 DIMMs (800 MHz).
2. Both DIMM slots in a memory bank must be populated.
3. Banks must be populated in sequential alphabetic order, starting with bank A.
4. Both DIMMs in a memory bank must be identical. Install identical DIMMs as pairs only, starting with DIMM socket 1, bank A.
5. Multiple advanced memory protection (AMP) modes are supported, based on DIMM population and RBSU selection. The server blade defaults to Advanced ECC.
6. DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.
7. DIMM banks are active only when the corresponding processor socket is populated.
8. The memory bus will operate at 800 MHz with four (4) or fewer DIMMs per processor, 667 MHz with six (6) DIMMs per processor, and 533 MHz with eight (8) DIMMs per processor.

HP ProLiant BL685c G6 Server Blade

Standard Memory

8192 MB (4 x 2048 MB) of PC2-6400 Registered DDR2-800 ECC DIMMs.

Standard Memory Replaced with Optional Memory

Up to 262144 MB of PC2-5300, Registered DDR2 ECC DIMMs. Memory is available with the removal of standard memory and the installation of optional PC2-5300, Registered DDR2 DIMM memory expansion kits.

Memory		Slot							
Standard	8192 MB	Processor 1							
		1A	2A	3B	4B	5C	6C	7D	8D
		2048 MB	2048 MB	Empty	Empty	Empty	Empty	Empty	Empty
		Processor 2							
		9E	10E	11F	12F	13G	14G	15H	16H
		2048 MB	2048 MB	Empty	Empty	Empty	Empty	Empty	Empty
		Processor 3							
		17I	18I	19J	20J	21K	22K	23L	24L
		Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty
		Processor 4							
		25M	26M	27N	28N	29O	30O	31P	32P
		Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty
		Processor 1							
		1A	2A	3B	4B	5C	6C	7D	8D
		8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB
		Processor 2							
9E	10E	11F	12F	13G	14G	15H	16H		
8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB		
Processor 3									
17I	18I	19J	20J	21K	22K	23L	24L		
8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB		
Processor 4									
25M	26M	27N	28N	29O	30O	31P	32P		
8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB		
Maximum	262144 MB								

HP Memory

Following are memory options available from HP:

HP 2GB (2x1GB) Single Rank PC2-6400 (DDR2-800) Registered Memory Kit	497763-B21
HP 4GB (2x2GB) Single Rank PC2-6400 (DDR2-800) Registered Memory Kit	497765-B21
HP 8GB (2x4GB) Dual Rank PC2-6400 (DDR2-800) Registered Memory Kit	497767-B21
HP 8GB (2x4GB) Dual Rank x4 PC2-6400 (DDR2-800) Registered Low Power Memory Kit	504351-B21
HP 16GB (2x8GB) Dual Rank PC2-5300 (DDR2-667) Registered Memory Kit	408855-B21
HP 64GB (8x8GB) Dual Rank PC2-5300 (DDR2-667) Registered Memory Kit	495605-B21

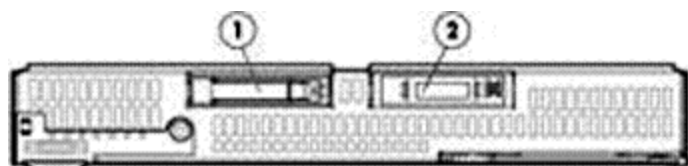
NOTE: Must be installed in pairs.

NOTE: DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.

NOTE: The memory bus will operate at 800 MHz with four (4) or fewer DIMMs per processor, 667 MHz with six (6) DIMMs per processor, and 533 MHz with eight (8) DIMMs per processor.



Storage



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

Hard Drives

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

NOTE: Simultaneous operation of hot plug hard drives and solid state drives is not supported.

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

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K DP	2	1-2	Smart Array P400i Controller
300GB 3G SAS 10K DP			
146GB 6G SAS 15K DP			
146GB 3G SAS 15K DP			
146GB 6G SAS 10K DP			
146GB 3G SAS 10K DP			
72GB 6G SAS 15K DP			
72GB 3G SAS 15K DP			
72GB 3G SAS 10K DP			
36GB 3G SAS 15K DP			

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

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K DP	2	1-2	Smart Array P400i Controller

SATA Hot Plug SFF Midline (MDL) Drives

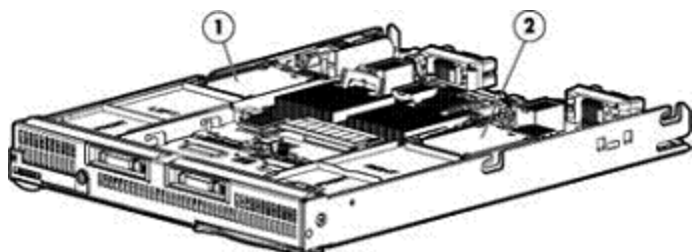
	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	2	1-2	Smart Array P400i Controller
160GB 3G SATA 5.4K			

SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K	2	1-2	Smart Array P400i Controller
120GB 1.5G SATA 5.4K			

Solid State Drives (SSD)

	Quantity Supported	Position Supported	Controller
32GB 1.5G SATA	2	1-2	Smart Array E200i Controller
64GB 1.5G SATA			



1-2 2 x SATA Solid State Drives (SSD)

SATA Non-Hot Plug Solid State Drives

	Quantity Supported	Position Supported	Controller
32GB 1.5G SATA SSD	2	1-2	HP Integrated SATA Controller
64GB 1.5G SATA SSD			

Technical Specifications

System Unit	Dimensions (H x W x D)	14.42 x 2.19 x 20.058 (36.63 x 2.19 x 50.95 cm)								
	Weight (approximate)	<table border="0"> <tr> <td style="padding-right: 20px;">Maximum</td> <td>22.8 lbs (10.3 kg)</td> </tr> <tr> <td colspan="2">(all hard drives and processors installed)</td> </tr> <tr> <td style="padding-right: 20px;">Minimum</td> <td>20.82 lbs (9.44 kg)</td> </tr> <tr> <td colspan="2">(two processors and four DIMMs)</td> </tr> </table>	Maximum	22.8 lbs (10.3 kg)	(all hard drives and processors installed)		Minimum	20.82 lbs (9.44 kg)	(two processors and four DIMMs)	
Maximum	22.8 lbs (10.3 kg)									
(all hard drives and processors installed)										
Minimum	20.82 lbs (9.44 kg)									
(two processors and four DIMMs)										
	Power Specifications	<p>For power specifications including input requirements, BTU rating, and power supply output, please see the HP BladeSystem c-Class Enclosures QuickSpecs located at:</p> <p>HP BladeSystem c3000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html</p> <p>HP BladeSystem c7000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html</p> <p>To review typical system power ratings use the HP BladeSystem Power Sizer available at: http://www.hp.com/go/ bladesystem/powercalculator</p> <p>NOTE: For optimal cooling and system performance the BL685c G6 requires the c7000 enclosure to be configured with 10 fans and the c3000 enclosure to be configured with 6 fans.</p>								
	System Inlet Temperature	<table border="0"> <tr> <td style="padding-right: 20px;">Operating</td> <td>10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).</td> </tr> <tr> <td style="padding-right: 20px;">Non-operating</td> <td>-30° to 60°C (-22° to 140°F), maximum rate of change is 20°C/hr (36°F/hr).</td> </tr> </table>	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).	Non-operating	-30° to 60°C (-22° to 140°F), maximum rate of change is 20°C/hr (36°F/hr).				
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	Relative Humidity (non-condensing)	<table border="0"> <tr> <td style="padding-right: 20px;">Operating</td> <td>10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.</td> </tr> <tr> <td style="padding-right: 20px;">Non-operating</td> <td>10 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.</td> </tr> </table>	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.	Non-operating	10 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.				
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	Acoustic Noise	<p>For acoustic noise specifications, please see the HP BladeSystem c-Class Enclosures QuickSpecs located at:</p> <p>HP BladeSystem c3000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html</p> <p>HP BladeSystem c7000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html</p>								

Technical Specifications

HP Smart Array P400i Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2 GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4 GB/s maximum bandwidth.
	Cache Memory	72-bit 512MB cache; ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical drives
	Maximum Logical Drive Capacity	500 GB (2 x 250 GB)
	Host Memory Addressing	64-bit, supporting greater than 4 GB server memory space
	RAID Support	RAID 1 (Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	Upgradeable Firmware with recovery ROM feature

Embedded NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter	Type	Integrated dual-port KR 10GbE
	Network Processor	Broadcom 57711
	Data Transfer Method	x8 PCI Express 1.0
	Network Transfer Rate	Two ports, each at 20 Gbps full duplex; 40 Gbps aggregate full duplex theoretical bandwidth NOTE: Each port is autosensing 1 Gb / 10 Gb, and can interoperate with 1 Gb HP BladeSystem c-Class interconnect components. NOTE: Each port on the NC532i adapter transmits from the server at only 20 Gbps (theoretical) full duplex.
	IEEE Compliance	802.1p QoS, 802.1Q VLAN tagging, 802.3ad link aggregation, 802.3ap 10GBase-KR, and 802.3x flow control
	Standard Features	<ul style="list-style-type: none"> ● ProLiant Teaming including Network Fault Tolerance, Transmit Load Balancing, and Switch-Assisted Load Balancing ● 4K Jumbo frames ● Microsoft Windows Receive Side Scaling (RSS) ● Optional accelerated iSCSI

HP Integrated Lights-Out 2 (iLO 2) integrated on system board	Architecture	32-bit PCI-based health and remote management ASIC
	Processor	32-bit RISC processor core running at 66MHz
	Upgradeability	Option firmware upgradeable via Flash ROM
	Operating System Support	Microsoft Windows Server 2008 Standard Edition (32bit and 64bit)
		Microsoft Windows Server 2008 Enterprise Edition (32bit and 64bit)
		Microsoft Windows Server 2003 and Windows Server 2003 R2, and Windows Server 2003 for Extended Systems Standard Edition, Enterprise Edition
		Red Hat Enterprise Linux 5.4 (32bit and 64bit)
		SUSE LINUX Enterprise Server 11 (32bit and 64bit)
		SUSE LINUX Enterprise Server 10 (32bit and 64bit)
		VMware ESX 4.0
VMware ESX 3.5.0		
Microsoft Windows XP Professional Edition		
Microsoft Windows Vista Business and Ultimate Editions		
Red Hat Enterprise Linux Desktop 5.00		
SUSE Linux Enterprise Desktop 11		
SUSE Linux Enterprise Desktop 10		
Client Browser Support	Microsoft Internet Explorer 7	
	Microsoft Internet Explorer 6	
	Firefox 3.5 (on supported Windows and Linux systems)	
	Firefox 3.0 (on supported Windows and Linux systems)	
Command Line Support	Telnet, Secure Shell and serial port access	
	Secure Socket Layer	
	Secure Shell version 2 (Password and certificate)	

Technical Specifications

Security	Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface RC4 encryption of video
Directory Support Services	Active Directory v1.0 (Windows 2003)
Driver Support	Health Driver (HP ProLiant iLO 2 Management Controller Driver) iLO Management Channel Interface Driver
Management protocols supported	SNMP 2, IPMI 2.0 (KCS interface), DMTF Server Management Command Line Protocol Specification (SM CLP), DMTF Web Services Management Specification (WS Management)

Environment-friendly Products and Approach

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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