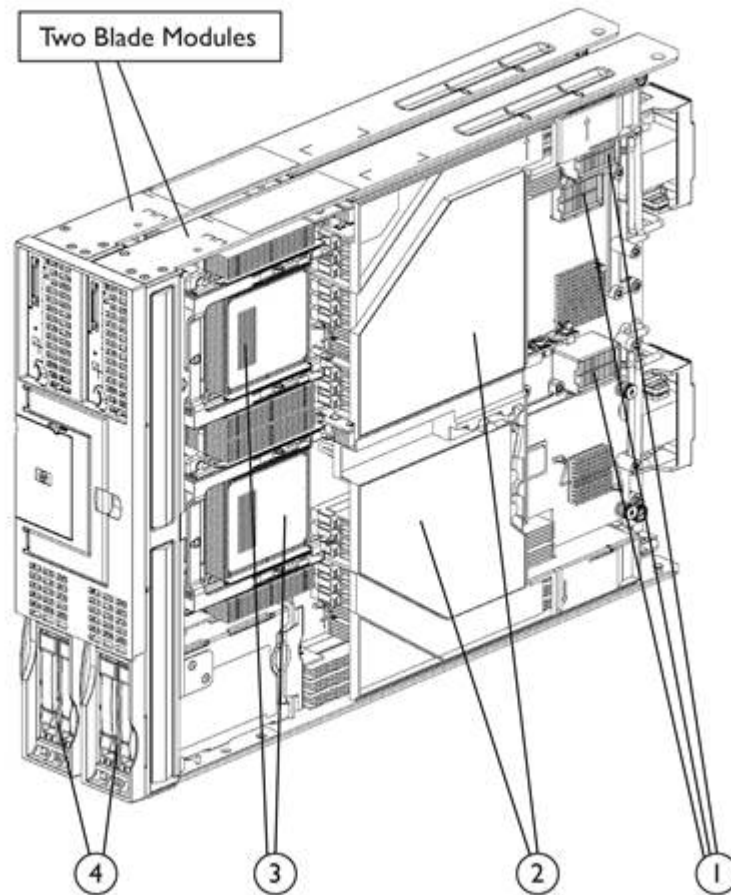


Overview



1. 6 x PCIe mezzanine slots (per BL870c i2)
2. 48 x DDR3 DIMM slots (per BL870c i2)
3. 4 x Intel® Itanium® processor 9300 series sockets (per BL870c i2)
4. 4 x SFF SAS HDDs, hot-swap bays (per BL870c i2)

What's New

- Support for HP-UX Virtual Partitions (vPars) v6.0
- Support for HP 300GB 6G SAS 15K SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive
- Support for HP NC553m Dual Port 10Gb FlexFabric Adapter (Ethernet and FCoE)
- Support for HP Smart Array P711m 6G SAS Controller

At A Glance

This document covers the HP Integrity BL870c i2 server blade only. For more information on 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
- HP BladeSystem c-Class Interconnect and Mezzanine Components:
<http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html>

Overview

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

The HP Integrity BL870c i2 delivers the performance, reliability, and availability on 64-bit operating systems (HP-UX 11i v3, Microsoft Windows® Server 2008 for Itanium-based systems and OpenVMS v8.4) for the ultimate in scalability and flexibility in deployment: To further enrich your cost-efficient, consolidated Integrity blade infrastructure, HP Insight Dynamics - VSE for HP Integrity servers can help with solution components such as HP-UX Virtual Partitions (vPars) v6.0, HP Integrity Virtual Machines, HP Capacity Advisor and Virtualization Manager, HP Global Workload Manager and HP-UX Workload Manager, HP Insight Dynamics - VSE infrastructure orchestration HP Insight Dynamics - VSE Reference Architectures, and HP Serviceguard.

HP Integrity BL870c i2 server blade includes:

- **Processor:**
 - Up to four Intel® Itanium® 9300 Series processors
- **Memory:**
 - Up to 768 GB of memory. Supporting (48) DDR3 registered memory modules (R-DIMMs)
- **Storage Controller:**
 - Two (2) Embedded HP p410i SAS RAID Controllers integrated on system board
 - RAID 1, RAID 0, and HBA mode configuration options
- **Internal Drive Support:**
 - Supports up to (4) four small form factor (SFF) SAS hot plug hard drives
- **Network Controller:**
 - Eight (8) NIC ports via four (4) embedded NC532i Dual Port Flex-10 Multifunction Server Adapters
 - NOTE: Flex-10 capability requires OS drivers and the use of an HP Virtual Connect Flex-10 10GbE Ethernet module. Learn more at: www.hp.com/go/virtualconnect
 - NOTE: BL8x0c i2 server blades require Virtual Connect 3.00 or later when used in Virtual Connect configurations
 - NOTE: Each port is autosensing 1Gb/10Gb, and can interoperate with 1Gb HP BladeSystem c-Class interconnect components
 - Plus one (1) additional 10/100 NIC dedicated to Integrity iLO 3 Management
- **Mezzanine Support:**
 - Six (6) additional I/O expansion slots via mezzanine cards.
 - Supports up to (6) mezzanine cards
 - HP NC553m Dual Port 10Gb FlexFabric Adapter
 - HP NC551m Dual Port 10Gb FlexFabric Adapter
 - HP NC552m 10Gb 2-port Flex-10 Ethernet Adapter
 - HP NC532m Dual Port Flex-10 10GbE BL-c Adapter
 - HP Emulex LPe1205 8Gb FC BL-c HBA (2-port 8Gb Emulex FC HBA)
 - HP QMH 2562 8Gb FC BL-c HBA (2-port 8Gb QLogic FC HBA)
 - HP Smart Array P711m/1G FBWC Controller
 - HP Smart Array P700m/512 Controller
 - HP 4X QDR IB CX-2 Dual Port Mezz HCA for HP BladeSystem c-Class
 - HP NC364m 4-port 1GbE BLc Adapter
 - HP NC360m 2-port 1GbE BLc Adapter
- **USB Support:**
 - Two (2) Internal USB ports on the BL870c i2
 - Two (2) External USB ports on the BL870c i2 via SUV cable
- **Management:**
 - HP Integrity Server Blades Management Software
 - Integrity Integrated Lights-Out 3 (iLO 3) management processor
 - HP Insight Control
 - HP System Management Homepage
 - HP-UX 11i Management Software for Integrity Blades, www.hp.com/go/hpuxblades
 - HP Ignite-UX
 - HP-UX Software Assistant (SWA)
 - HP Dynamic Root Disk (DRD)
 - HP BladeSystem Infrastructure Management Software:
 - HP BladeSystem c-Class Onboard Administrator

Overview

- HP BladeSystem c-Class Virtual Connect
 - Enterprise Management Software
 - Data Protector Software
 - GlancePlus Pak
 - Performance Manager and Agent
- Virtualization with HP Insight Dynamics - VSE for HP Integrity servers , www.hp.com/go/insightdynamics/integrity
 - Advanced Infrastructure Management
 - HP Capacity Advisor
 - HP Virtualization Manager
 - HP Global Workload Manager and HP-UX Workload Manager
 - HP Insight Dynamics infrastructure orchestration
 - HP Systems Insight Manager
 - Partitioning Continuum
 - HP-UX Virtual Partitions (vPars) v6.0
 - HP Integrity Virtual Machines (with HP-UX guest OS's and Windows Guest OS's)
 - HP Process Resource Manager/pSets
 - Secure Resource Partitions
 - Continuous availability
 - HP Serviceguard for HP-UX 11i
 - HP Serviceguard Extensions for SAP
 - HP Serviceguard Extensions for Faster Failover
 - HP Insight Dynamics - VSE Reference Architectures
 - Insight Dynamics - VSE best practices including HP Capacity Advisor, HP Virtualization Manager, HP Global Workload Manager, HP Integrity Virtual Machines and HP Insight Dynamics infrastructure orchestration
- **Form Factor:**
 - HP Integrity BL870c i2 server blade is a full-height, double wide (occupies 2 slots) BladeSystem c-Class form factor. The BL870c i2 server blade plugs into the BladeSystem enclosure. In the c7000 enclosure, 4 server blades are supported per 10U enclosure. 4 enclosures can be configured to a standard 42U rack; 16 BL870c i2 server blades can be configured in a fully populated rack. In the c3000 enclosure, 2 BL870c i2 server blades are supported per 6U enclosure.
- **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 4 HP Integrity BL870c i2 servers plugged vertically. Four (4) enclosures can be configured to a standard 42U rack
 - The HP BladeSystem c3000 rack enclosure is 6U high and holds up to 2 HP Integrity BL870c i2 servers plugged horizontally. Up to 7 enclosures can be configured to a standard 42U rack
 - The HP BladeSystem c3000 Enclosure targets three separate market segments:
 - Remote sites needing between 2 and 8 server blades
 - Mid-sized companies with between 3 and 100 servers in their company
 - Enterprise accounts with special datacenter requirement, such as DC power, or very limited rack power and cooling capacity.
 - 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:**
 - Protected by HP Services and a worldwide network of HP Authorized Channel Partners. Three-year parts, 3 Year Labor and 3 Year on-site limited global warranty. Certain restrictions and exclusions apply
- **NEBS Compliance:**
 - The HP BladeSystem c7000/BL870c i2 configuration offers a NEBS Level 3 DC powered option, which enables equipment operability in network facility environments. NEBS compliance is a requirement for Telecom Carriers and their Equipment Providers that are seeking to install equipment in central offices. They view compliance as key to ensuring personnel safety, protection of property, and operational reliability. There are three distinct certification levels specified in SR-3580, Network Equipment-Building System (NEBS) Criteria Levels. All carrier-grade (CG) products released by HP are evaluated to the NEBS Level 3 criteria, which provides the maximum assurance of equipment operability in network facility environments. The Physical Components are described in GR-63-CORE, while the Electromagnetic Compatibility (EMC) and Safety components are described in GR-1089-CORE.

Overview

- This BL870c i2 system has met NEBS Level 3 and ETSI Certifications: NEBS NRTL Certified to NEBS Level-3 Criteria (GR-63-CORE, GR-1089-CORE) and ETSI Certified to EN 300 019, EN 300 386, and EN 300 753.

Standard Features

Processor

One of the following depending on Model

Quad-Core Processors

Intel® Itanium® 9320 (1.33GHz/4-core/16MB/155W); up to 1.46 GHz with Turbo) Processor

Intel® Itanium® 9340 (1.6GHz/4-core//20MB/185W); up to 1.73 GHz with Turbo) Processor

Intel® Itanium® 9350 (1.73GHz/4-core/24MB/185W); up to 1.86 GHz with Turbo) Processor

Dual-Core Processors

Intel® Itanium® 9310 (1.6GHz/2-core/10MB/130W) Processor

Upgradeability

Upgradeable to four (4) processors

NOTE: The HP Integrity BL870c i2 supports 2, 3 or 4 processor configurations. Processors must be identical.

Cache Memory

One of the following depending on Model

L2 cache per core; 512KB Instruction, 256KB Data

L3 cache; up to 24MB, see processor specifics

Chipset

Intel Boxboro

Memory

Type DDR3 registered memory modules (R-DIMMs)

Minimum 16 GB (4 x 4 GB DIMMs)

Maximum 768 GB (48 x 16 GB DIMMs)

NOTE: Memory modules consist of two (2) DIMMs.

NOTE: Double Chip Spare is enabled in pairs of DIMMs. Double Chip Spare requires identical DIMM types and capacities

NOTE: Memory must be loaded in quads (two memory modules, 4 DIMMs)

Network Adapter

Eight (8) NIC (LOM) ports via (4) Broadcom Dual Port Flex-1010GbE Multifunction Server Adapter. Flex-10 capability requires OS drivers and the use of an HP Virtual Connect Flex-10 10GbE Ethernet module. Learn more at: www.hp.com/go/virtualconnect

NOTE: BL8x0c i2 server blades require Virtual Connect 3.00 or later when used in Virtual Connect configurations

NOTE: Each part is autosensing 1Gb/10Gb, and can interoperate with 1Gb HP BladeSystem c-Class interconnect components.

One (1) additional 10/100 NIC dedicated to Integrity iLO 3 Management

NOTE: Up to twenty-four additional Gigabit Ethernet ports via the NC364m Quad-port mezzanine adapter or twelve additional 10 Gigabit Ethernet ports via the NC532m dual-port mezzanine adapter.

Expansion Slots

Six Mezzanine slots, four (4) Type II and two (2) Type I, PCIe x8 Gen2

Integrated Manageability

Factory installed Integrity iLO 3 Advanced Pack license

HP BladeSystem c-Class Onboard Administrator

HP BladeSystem c-Class Virtual Connect

Storage Controller

Two (2) HP p410i 3Gb SAS Controller

4 SAS Channels (one to each HDD)

Supports RAID 1, RAID 0, and HBA mode options

Zero (0) cache, no cache options



Standard Features

Maximum Internal Storage	Hot Plug SAS	3.6TB SAS	4 x 900GB SAS
---------------------------------	--------------	-----------	---------------

Graphics	Integrated ATI RN50 1280 x 1024 x 16M color (128 MB DDR memory)		
	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

FlexFabric Support

Dual (2) ports via HP BLc NC553m Dual Port FlexFabric 10Gb Converged Network Adapter
 Dual (2) ports via HP BLc NC551m Dual Port FlexFabric 10Gb Converged Network Adapter

NOTE: BL8x0c i2 server blades require Virtual Connect 3.15 or later
NOTE: Each port supports 10GbE Ethernet or 8Gb FCoE traffic.
NOTE: Please see the QuickSpecs for Technical Specifications and additional information and for support.

HP NC551m: http://h18004.www1.hp.com/products/quickspecs/13649_div/13649_div.html
 HP NC553m: http://h18004.www1.hp.com/products/quickspecs/13737_div/13737_div.html

InfiniBand Support

Optional InfiniBand HCAs are supported by the HP Integrity BL860c i2 Server Blade. The mezzanine circuit board connects directly to the server blade system board.

HP 4X QDR InfiniBand ConnectX-2 Dual Port Mezzanine HCA for c-Class BladeSystem (PN 59251)

Features:

- Negotiates to DDR/QDR speeds
- Dual ports for redundant path connections
- Support for HP-UX 11i v3
- Supported with HP 4X QDR InfiniBand Switch Module for c-Class BladeSystem (PN 489184-)
- For details specifications, please visit:
<http://www.hp.com/products1/serverconnectivity/adapters/infiniband/specifications.html>

Fibre Channel Support

Optional Fibre Channel HBAs are supported by the HP Integrity BL870c i2. The mezzanine circuit board connects directly to the server blade system board.

8Gb Fibre Channel Host Bus Adapters:

- QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem (PN 451871-B21)
- Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem (PN 456972-B21)

8Gb Fibre Channel HBAs feature:

- 8/4/2/1Gb/s auto negotiating speeds
- Dual ports for redundant path connections
- Optimized for HP Storage and supported by third party SAN vendors
- Support for HP-UX 11i v3

Compatible SAN

HP Integrity BL870c i2 server blades are optimized for HP Storage MSA, EVA, and XP products.

Smart Array Controller Support

Optional Smart Array Controller is supported by BL870c. The mezzanine circuit board connects directly to the server blade system board, and provides connection to off-blade SAS storage via a SAS interconnect switch module in the HP BladeSystem enclosure:



Standard Features

HP Smart Array P711m/1G FBWC 4-ports Ext PCIe x8 6G SAS Controller (PN 513778-B21)

- Provides support for HP Zoned Storage for BladeSystem
- Zoned Storage solution requires compatible HP Storage 600 Modular Disk System and HP S 3Gb SAS BL Switch
- Supports RAID 6 with Advanced Data Guarding (ADG)
- Provides support for HP P2000 G3 MSA
- Support for HP P2000 G3 MSA requires HP Storage 6Gb SAS BL Switch

NOTE: For additional details please see:

<http://www8.hp.com/h20195/v2/GetDocument.aspx?docname=c04111558>

HP USB Options

External USB DVD drive with 6 ft USB extension cable is supported with c7000 enclosures.

The solution includes the following components:

- External USB DVD drive with 9-inch USB cable
- Power adaptor, power cable and USB Y-connector
- 6-foot USB extension cable

NOTE: The USB Y-connector goes between the extension cable and the 9-inch USB cable fixed w DVD drive.

NOTE: The Y-connector should NOT be placed between the server blade and the 6-foot Extension

Integrity Server Blades Management Software and HP Integrity Essentials Software Plugins

HP-UX 11i Management Software for HP Integrity BL870c i2 Server Blade and HP BladeSystem

● Getting Started

- HP Systems Insight Manager
- HP Insight Control for HP-UX 11i
- HP-UX 11i System Management
- HP BladeSystem Integrated Manager in HP System Ins Manager
- HP Onboard Administrator
- HP BladeSystem c-Class Onboard Administrator Firmware
- HP BladeSystem c-Class Virtual Connect Firmware
- HP Insight Control for HP-UX 11i v3 (Included in Base OI)

● Deploy

- HP Ignite-UX
- Software Distributor-UX
- Software Package Builder
- Dynamic Root Disk (DRD)

● Monitor

- HP Systems Insight Manager
- HP System Management Homepage
- Glance Plus Pak
- Performance Manager and Agent
- HP Serviceguard Manager

● Control

- HP Integrity Integrated Lights-Out (iLO) 3 (standard with BL870c i2 servers)
- Integrity iLO 3 Advanced Pack license (included with BL servers)

● Protect

- HP-UX Bastille
- Secure Resource Partitions
- Data Protector Software
- Software Assistant (SWA)

● Optimize

- HP Capacity Advisory
- HP Virtualization Manager

Standard Features

- HP-UX Workload Manager
- HP Global Workload Manager
- Process Resource Manager
- HP Insight Power Manager
- HP-UX 11i v3 power management
- **Provision**
 - HP Insight Dynamics infrastructure orchestration
- **Integrate**
 - HP Business Technology Optimization
 - IT Management Software
 - HP Insight Dynamics - VSE for HP Integrity server blade
- **Learn More**
 - For additional information on HP Integrity server blade management software please visit: <http://h18004.www1.hp.com/products/servers/integrity-blade-class/860c/compmatrix.html>

Glossary of Integrity Server Blades Management Software Product Description

HP BladeSystem Integrated Manager in HP Systems Insight Manager	The HP BladeSystem Integrated Manager is a component in HP Systems Insight Manager (SIM) that provides streamlined management for the entire HP BladeSystem product family. The HP BladeSystem Integrated Manager enables users to quickly navigate their HP blade environment including blade servers, enclosure infrastructures, racks, and network switches, via automatically generated blade rack picture views and hierarchical trees. Users are able to conveniently configure, deploy, manage individual or groups of blade systems. Additionally, users are able to quickly set up logical collections of blade systems for convenient management and control.
HP Blades Visualization	Used by System Administrators to identify, associate and group blade collections, using tables, trees, and picture views, and it can also be used to monitor performance and launch Integrity Essentials. NOTE: For more information about Manageability solutions for Integrity Servers go to: http://h20341.www2.hp.com/integrity/w1/en/software/essentials-overview.html .
HP GlancePlus Pak	HP GlancePlus Pak provides you with a single product for managing system's availability and performance. It is an integrated product that includes HP GlancePlus. As an integrated product, the GlancePlus includes the real-time diagnostic capabilities of GlancePlus and the historical data collection capabilities of the Performance Agent. The performance agent is used with other availability and performance management products, thus providing an integrated real-time and historical performance management solution.
HP Ignite-UX for HP-UX Deployments	HP Ignite-UX is a free toolset that enables a network install of HP-UX on multiple PA-RISC and/or Integrity servers on a network. It can also be used to create custom install configurations, or golden images, recover servers remotely, create custom recovery media including tape, CD and DVD, and manage and monitor multiple client installation sessions.
HP Capacity Advisor	The capacity planning component of HP Insight Dynamics - VSE, HP Capacity Advisor offers the industry's first lightweight, integrated tool for ongoing capacity planning by simulating the placement of application workloads to help IT administrators improve server utilization. It captures real-world server utilization data to pre-test different scenarios before making changes to critical applications.

Standard Features

HP Virtualization Manager	The configuration management component of HP Insight Dynamics HP Virtualization Manager provides a central point of control that allows you to manage all the resources in your environment, providing a powerful way to connect IT resources to real business needs. With its easy-to-use interface you can see all your available virtual and physical resources and how they are being used.
HP Integrity Integrated Lights-Out (iLO) 3 (factory integrated with BL870c i2)	HP Integrity Integrated Lights-Out (iLO) management processors make it simpler, faster, and less costly to remotely manage your Integrity servers. HP Integrity iLO 3, ships with a built-in Advanced Pack License. iLO 3 Advanced features enabled in this release: Virtual Media, LDAP directory services, iLO power measurement, and integration with Insight Power Manager. No additional iLO licensing is needed. NOTE: Please see: www.hp.com/go/integrityilo for more information
HP Onboard Administrator	The Onboard Administrator for the HP BladeSystem c7000 enclosure is the brains of the new c-Class infrastructure. Together with the enclosure HP Insight Display, the Onboard Administrator has been designed for local and remote administration of HP BladeSystem c-Class. This module and its firmware provides: <ul style="list-style-type: none">• Wizards for simple, fast setup and configuration• Highly available and secure access to the HP BladeSystem infrastructure• Security roles for server, network, and storage administrators• Automated power and cooling of the HP BladeSystem infrastructure• Agent-less device health and status• Thermal Logic power and cooling information and control NOTE: Please see: http://www.hp.com/go/onboardadministrator for information.
HP Serviceguard Manager	HP Serviceguard Manager is a graphical user interface (GUI) that provides configuration, administration, and monitoring capabilities for Serviceguard. Serviceguard Extension for RAC, Metrocluster, and Continentalcluster. Using Serviceguard Manager, operators see color-coded icons that provide a big-picture view of multiple clusters. From this big-picture view, operators can drill down and proactively manage clusters, systems (nodes), and applications packages that run applications.
HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible environment to centrally manage servers, storage and other infrastructure devices across multiple operating system platforms.
HP System Management Homepage	HP System Management Homepage is a web-based interface that consolidates and simplifies the management of individual ProLiant and Integrity servers running Microsoft Windows or Linux operating systems. HP 9000 and HP Integrity servers running HP-UX 11i. By aggregating data from HP Insight Management Agents and other management tools, System Management Homepage provides a secure and intuitive interface to review in-depth hardware configuration and status data, performance metrics, system thresholds and software version control information. System Management Homepage can also be used to access the HP Lights-Out Management processor on ProLiant and Integrity servers.
HP Insight Dynamics - VSE for HP Integrity servers	HP Insight Dynamics - VSE is advanced lifecycle management software for HP Integrity servers which allows you to instantly adjust to dynamic business demands - with the new addition of infrastructure orchestration not only can you easily plan, configure, and automate your physical and virtual resources in the same way, but now you can also provision and modify a complex infrastructure in minutes.

Standard Features

HP-UX Software Assistant (SWA)	HP-UX Software Assistant (SWA) is a command-line based tool that consolidates and simplifies patch management and security bulletin management on HP-UX systems. The SWA tool is new for HP-UX releases and includes Security Patch Check (SPC), and is the HP-recommended utility to use to maintain currency with HP-published bulletins for HP-UX software.
HP-UX Workload Manager	HP-UX Workload Manager (HP-UX WLM) is a resource management that provides automatic CPU resource allocation and application performance management based on your service-level objectives (SL) and business priorities. WLM is most effective managing applications that are CPU-bound. It automatically adapts system or partition CPU resources (cores) to the demands, SLOs, and priorities of the running applications. The core is the actual data processing engine within a processor, where a single processor can have multiple cores, and a core can support multiple execution threads through Hyper-Threading, introduced with HP-UX 11i (as discussed below.) It adjusts the CPU allocation of a group of processes known as a workload, basing adjustment on the current needs and performance of the applications in that workload.
HP Global Workload Manager	The workload management capability for HP Integrity servers is provided by the HP Global Workload Manager component of HP Insight Dynamic VSE. HP Global Workload Manager (gWLM), is an intelligent policy that automatically allocates resources among multiple workloads to increase server utilization while meeting service levels for high-priority applications. Designed to work across multiple HP-UX 11i, OpenVM Linux environments, the workload management features are ideal for centralized IT environments that host applications for many departments.
HP Insight Dynamics infrastructure orchestration	HP Insight Dynamics infrastructure orchestration capabilities let you provision infrastructure in minutes to automatically activate physical servers, storage, and networking from pools of shared resources. Whether you need a single virtual machine or infrastructure for a complex three-tier application, Insight Dynamics infrastructure orchestration finds available resources, streamlines the approval process, and automates provisions and configures what's needed across infrastructure silos. Delivering infrastructure to the business becomes faster, more efficient, and more reliable.
Performance Manager and Agent	HP Performance Manager, Agents, and Monitor combine to provide a powerful and flexible distributed management solution. This solution provides a single interface for centrally monitoring, analyzing, and forecasting resource utilization for distributed multi-vendor environments, enabling you to offer the best possible level of service in a cost-effective manner.
Process Resource Manager	HP Process Resource Manager (HP PRM) is a resource management tool used to control the amount of resources that processes use during high system load. HP PRM can manage allocation of the following resources: <ul style="list-style-type: none">● CPU: Ensures a minimum allocation of CPU; can also simultaneously cap CPU resource usage for each group in the configuration. (Starting with HP-UX 11i v3, per-group capping is available.)● Memory: Ensures a minimum allocation of private real memory; also caps private memory usage. Allows you to allocate an exact amount of shared memory.● Disk bandwidth: Ensures a minimum allocation of disk bandwidth.
Secure Resource Partitions	One method that HP Insight Dynamics - VSE uses to improve server resource utilization is to consolidate multiple applications within a single operating system image. Secure Resource Partitions combine kernel security and proven resource management to stack multiple applications.

Standard Features

HP Secure Resource Partitions
HP-UX Workload Manager or HP Global Workload Manager HP Online Integrity VM Guest
HP Serviceguard for HP-UX 11i
HP Serviceguard Manager
HP Serviceguard Extensions for SAP
HP Serviceguard Extensions for Faster Failover
HP Insight Control power management
GlancePlus Pak
Performance Manager and Agent

Intelligent Manageability

HP Integrity Integrated Lights-Out 3
Virtual serial console (Multiple, mirrored sessions, with previous context and console log buffer)

Virtual Power Button Control

iLO 3 power measurement and integration with Insight Power Manager

Embedded system health and Integrity fault management Diagnostics and troubleshooting:

- virtual front panel
- log access to Integrity System Event Log
- Forward Progress Log Blade power consumption reading

Dedicated LAN Connectivity

Automatic IP Configuration via DHCP/DNS/WINS browser

Command Line and scripted access Industry Standard RC4, 128-bit Secure Sockets Layer (SSL) :

Secure Shell (SSH) Security

Directory Services Integration (LDAP)

Support for 19 user accounts with customizable access privileges

NOTE: iLO 3 Advanced Pack license is included with every BL870c i2 server blade. iLO 3 Advance features enabled in this release are Virtual Media, LDAP Directory Services Integration, iLO power measurement, and integration with Insight power manager.

Availability

Dual-Port Fibre Channel Mezzanine Card for redundant SAN connection

Four hot-plug SAS hard drive bays and two (2) integrated RAID (HP Smart Array p410i) controllers every server blade

Network adapter teaming (network fault tolerance, transmit load balancing, switch-assisted load balancing) supported on integrated LOMs and with add-in Mezzanine cards.

- ECC protected DDR3 registered memory modules (R-DIMMs)
- Memory double chip spare to overcome two DRAM chip failures
- Dynamic Processor resilience and deallocation with HP-UX
- Journal file system with HP-UX*
- Auto reboot
- HP Serviceguard for HP-UX*
- HP Serviceguard Extension for RAC for HP-UX*
- HP Serviceguard Extension for SAP for HP-UX*
- Serviceguard Manager for HP-UX Clusters*
- HP Event Monitoring Service
- HA Monitors for HP-UX
- HA Toolkits for HP-UX
- HP Mirrordisk/UX* (Included if purchase HP-UX 11i VSE, DC, or HA OEs)
- Extended Campus Cluster*, HP Metrocluster*, and HP Continentalclusters* for HP UX
- HP System Insight Manager (SIM) for proactive fault management
- HP Serviceguard Storage Management Suites for HP-UX*
- NEBS Level 3 Certified (GR-63-CORE, GR-1089-CORE)

Standard Features

NOTE: *Fee based software products.

Security

Hardware Security

- Administrator's password
- Integrity iLO 3 access control- 19 customizable local user accounts with assignable rights for console, configuration, etc.
- OA and Integrity iLO 3 Directory Services Integration (LDAP)
- Integrity iLO 3 access via SSL encryption or SSH
- Integrity iLO 3 access methods via web, SSH, etc. can be disabled
- SSL encryption on web console
- Trusted Platform Module (TPM) option for secure cryptographic key storage, integrates with other security features

Platform security fundamentals

For the past 25 years HP has been building one of the most trustworthy and secure UNIX operating systems on the market. Designed for the optimal protection against both external and internal threats, HP-UX 11i offers industry-leading breadth and depth of UNIX security features. Focused on comprehensive security integration aimed at proactively mitigating risk, reducing compliance cost and accelerating implementation, HP-UX security solutions significantly lower IT costs. This set of fully integrated and complementary features is designed to provide layered security with in-depth protection of all your enterprise assets by protecting all these aspects of data, systems, data and identity security. HP-UX independently validates its comprehensive security portfolio through Common Criteria security evaluation. For more details, visit: www.hp.com/go/hpux11isecurity

Protecting systems:

One critical factor in enterprise security is system minimization and hardening. HP-UX 11i offers a set of security features designed to address known and unknown vulnerabilities by running only the services that are needed, thus minimizing a potential point of attack. The following security features have built-in mechanisms not only to minimize and harden the system, but also to detect and react to attack in real time:

- Bastille system hardening
- Host Intrusion Detection System
- Secure Resource Partitions
- IPFilter - firewall technology
- Software Assistant (security bulletin currency)
- Install-time Security
- Boot Authentication
- Standard Mode Security Extensions
- Shadow Passwords
- Strong Random Number Generator

Protecting data:

HP-UX 11i offers data protection in many forms: protecting data in transit, in use and at rest. By using a set of security features designed to protect data in its three forms, HP-UX 11i customers can minimize potential breaches not only in terms of data loss, but in customer trust as well. Several security features offer protection capabilities to HP-UX customers:

- Encrypted volume and file system
- Trusted Computing Services
- Security containment
- OpenSSL
- IPSec
- Secure Shell
- MD5sum

Standard Features

Protecting Identity:

In modern day global enterprise companies, managing identity is not an easy task, especially as management requirements grow to include employees, contractors, partners and suppliers across countries with various privacy protection laws and regulation. HP-UX 11i dramatically simplifies this task by integrating various identity management technologies which offer ease of use and adherence to compliance regulation:

- Identity Management Integration
- Select Access for IdMI
- Role-based Access Control
- AAA Server
- HP Directory Server for HP-UX
- LDAP-UX Client
- Kerberos Server
- Kerberos Client Services
- PAM Kerberos

NOTE: HP also offers many additional security features available through open source software for HP-UX.

Common Criteria certification

Many enterprise and government customers require this vendor-independent security certification because it increases confidence in the product's security assurance, functionality, quality and effectiveness. Many governments, including the United States, require certification for government procurement.

Certification evaluations are only conducted by the evaluation agency after release of the product. HP-UX 11i v3, has been actively evaluated to the Common Criteria (CC) Security standards for many years. A history of our achievements include:

- February 2003: Certification of HP-UX 11i V1 achieves A CC to Evaluation Assurance Level 4
- May 2006: Certification of HP-UX 11i V2 to the current EAL4 Common Criteria
- May 2008: Certification of HP-UX 11iV3 achieved including hard partitions (nPars)
- December 2009: Certification of HP-UX 11iV3 to CCOPP profile including soft partitions (vPar)

Common Criteria certifications continue to be an integral part of our HP-UX comprehensive security portfolio. HP-UX 11i v3 has successfully completed a new Commercial off the Shelf (COTS) Compartmentalized Operations Protection Profile (CCOPP) evaluation. This new CCOPP evaluation encompasses the extensive range of security solution for HP-UX 11i v3 including soft partitioning or Virtual partitions (vPars) as well as the previously certified hard partitions (nPars).

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 Integrity Server Blades, HP ProLiant Server Blade, HP BladeSystem, HP 9000 servers as well as the MSA1xxx, VA7xxx, EVA, XP, rackable tape library 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 Simple Configurator SCE is a guided self service tool to help sales and non technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or integrate it into your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>

Service and Support

HP Care Pack Services are available for the HP Integrity BL870c i2 server blade. These services offer integrated hardware and software support to help customers maintain a robust, stable, flexible IT environment that enhances their business agility. They encompass today's most popular products, including UNIX, Windows and Linux servers, as well as mobile technology, network devices, desktop printers, storage solutions, management software and more.

All of these Service offerings let customers leverage HP Services multi-vendor, multi-technology experience and expertise; global reach with delivery capabilities; single-point-of-contact problem diagnosis and resolution; advanced remote monitoring and performance enhancement technologies and proven support management processes based on IT best practices.

HP Services professionals can help customers identify the support offering that fits their business and technology goals. HP Services include:

- **HP Critical Service** - comprehensive preventive services and super-responsive support to maximize availability and minimize downtime risk exposure in mission-critical environments
- **HP Proactive 24 Service** - collaborate with HP Services professionals to improve operational effectiveness, performance, and stability through joint services planning and 24x7 hardware/Software Support
- HP Foundation Care provides hardware and software support services

These products are covered by a global limited warranty and supported by HP Services.

NOTE: Server Blade Limited Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support.

NOTE: Server Blade Enclosure Limited Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support.

A complete range of HP Care Pack services are available including:

- Proactive Select - a cost effective method of buying service credits up front to be used for consultancy and service options as needed.
- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 hours, 5 day to 24 hours call window with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support.

NOTE: For more information regarding the Blade service portfolio visit our worldwide web site on the internet at: <http://h20219.www2.hp.com/services/cache/81725-0-0-225-121.html>

HP Services for the c7000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP Supported Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module and GbE2c Ethernet Blade Switch and Cisco Catalyst 3020 Blade Switch.

For a complete listing of service offerings and information visit:

<http://www.hp.com/services/bladestystems-services>

<http://www.commoncriteriaportal.org/files/epfiles/hp-ux11iv2.pdf>.

Support Services

HP Technology Services for Integrity Servers

HP Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HP to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

Protect your business beyond warranty with HP Care Pack Services

HP Care Pack Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

NOTE: Care Pack Services availability may vary by product and country.

Recommended HP Care Pack Services for optimal satisfaction Integrity Servers:

Optimized Care

HP Proactive Care Advanced - 24x7 coverage, three year Care Pack Service

Achieve a higher return on your product investment with the personal attention from a locally assigned Account Support Manager who delivers recommendations designed to improve availability and performance. Leverage your system's ability to connect to HP for automated problem detection and rapid critical event management to increase stability and reduce unplanned downtime. This recommendation provides 24x7 coverage with four-hour response for hardware and two-hour callback for supported software. Collaborative call management comes with Proactive Care Advanced or you may choose full support from HP where we own all cases through to resolution. HP is a leading provider of support services for most operating systems used on HP BladeSystem with long, successful partnerships with vendors such as Microsoft, Red Hat, VMware, SUSE and others. Purchasing software support from HP simplifies troubleshooting and shortens time to resolution with one call for hardware or software questions.

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA5-3259ENW&cc=us&lc=en>

Basic Care

HP Proactive Care with 24x7 coverage, three year Care Pack Service

HP Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to HP. This Care Pack Service combines three years' proactive reporting and advice with our 24x7 coverage and enhanced escalation management, four hour hardware response time and two hour call back for software questions on leading industry standard software running on your HP ProLiant server.

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

Related Services

HP Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

Factory Express 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. 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>.

Data Privacy Services

Protect your data through better media management. HP Data privacy services help manage and protect sensitive data to reduce the risk of unauthorized access to private information and help meet compliance requirements. Our retention

Support Services

services allow you to keep drives and other devices upon failure, our removal services provide convenient data sanitization and our recovery services allow you to safely retire IT assets and capture any remaining value from the hardware. www.hp.com/services/dataprivacy

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

eSupport

Get connected to HP to improve your support experience

Prevent problems with innovative, automated monitoring tools and proactive services. Combining Proactive Care Services with our remote support technology such as Insight Online provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: www.hp.com/go/proactiveinsightexperience

HP Support Center

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

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

** HP Support Center Mobile App is subject to local availability

Parts and Materials

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

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

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

Models

Base Models

<p>HP Integrity BL870c i2 Processor(s) Base Unit for c7000 Supports up to four (4) processors Enclosure AH383A</p>	<p>Four (4) processor sockets; processor modules are configured to order.</p>
<p>HP Integrity BL870c i2 Cache Memory Base Unit for c3000 All processor models Enclosure AM329A</p>	<p>Included with processors.</p>
<p>HP Integrity BL870c i2 Memory Base Unit for c3000 Enclosure AM329A</p>	<p>Forty eight (48) DIMM sockets; memory DIMMs are configured to order.</p>
<p>Network Adapter</p>	<p>Eight (8) NIC ports via (4) NC532i Dual Port Flex-1010GbE Multifunction Server Adapter NOTE: Flex-10 capability requires OS drivers and the use of an HP Virtual Connect Flex-10 10GbE Ethernet module. Learn more at http://www.hp.com/go/virtualconnect NOTE: BL8x0c i2 server blades require Virtual Connect 3.00 or later when used in Virtual Connect configurations NOTE: Each part is autosensing 1Gb/10Gb, and can interoperate with 1Gb HP BladeSystem c-Class interconnect components.</p>
<p>Storage Controller</p>	<p>One (1) additional 10/100 NIC dedicated to Integrity iLO 3 Management Integrated HP Smart Array p410i SAS Controller</p>
<p>Hard Drives</p>	<p>Four SFF SAS drive bays; hard disk drives are configured to order.</p>
<p>IO expansion</p>	<p>Six PCIe mezzanine card slots (PCIe Gen2 x8 interface); mezzanine card are configured to order</p>
<p>Optical Drive</p>	<p>None internal to blade server</p>
<p>Integrity iLO 3</p>	<p>Integrity iLO 3 Advance Pack license included</p>
<p>Form Factor</p>	<p>Supports up to 2 BL870c i2 in HP BladeSystem c3000 Enclosure Supports up to 4 BL870c i2 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 Enclosure

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

Step 1: Choose Required Base Server Blade Configuration

Base Unit	<p>HP Integrity BL870c i2 c7000 Server Blade AH383A</p> <p>NOTE: Choose the base models.</p> <p>NOTE: Adding Option code "#0D1" to the Server Blade P/N will integrate the configured blade into the enclosure (which must be on the same order)</p> <p>NOTE: When adding Option code "#0D1," must select whether server blade should be installed in an odd slot of the c7000 enclosure (AH383A#001) or in an even slot (AH383A#002).</p>
	<p>HP Integrity BL870c i2 c3000 Server Blade AM329A</p> <p>NOTE: Choose the base models.</p> <p>NOTE: Adding Option code "#0D1" to the Server Blade P/N will integrate the configured blade into the enclosure (which must be on the same order)</p> <p>NOTE: When adding Option code "#0D1," must select whether server blade should be installed in an odd slot of the c3000 enclosure (AH329A#001) or in an even slot (AH329A#002).</p> <p>Configurable Model ships with:</p> <p>Eight embedded 10 Gigabit Ethernet NIC ports with Flex-10 support plus (1) additional 10/100 NIC dedicated to Integrity iLO 3 Management</p> <p>Two Integrated HP p410i hardware RAID controller</p> <p>Four small form factor (SFF) SAS hot plug hard drive bays</p> <p>HP Integrity Integrated Lights-Out 3</p>

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

HP Processors	<p>NOTE: Select minimum two (2) and maximum four (4) processors.</p> <p>Quad-Core Processors</p> <p>HP BL8x0c i2 Itanium 9320 (1.33GHz/4-core/16MB/155W) Processor Kit AH386A</p> <p>HP BL8x0c i2 Itanium 9340 (1.6GHz/4-core//20MB/185W) Processor Kit AH387A</p> <p>HP BL8x0c i2 Itanium 9350 (1.73GHz/4-core/24MB/185W) Processor Kit AH388A</p> <p>Dual-Core Processor</p> <p>HP BL8x0c i2 Itanium 9310 (1.6GHz/2-core/10MB/130W) Processor Kit AH385A</p>
HP Memory	<p>NOTE: Select minimum two (2) modules per server and maximum twenty four (24) modules per server if 4 processors ordered.</p> <p>HP Integrity BL8x0c i2 8GB (2x4GB) PC3-10600 Registered CAS 9 Memory Kit AM327A</p> <p>HP Integrity BL8x0c i2 16GB (2x8GB) PC3-10600 Registered CAS 9 Memory Kit AM328A</p> <p>HP BL8x0c i2 32GB (2x16GB) PC3-10600 Registered CAS-9 Memory Kit AM363A</p> <p>NOTE: Memory Modules consist of two individual DIMMs.</p> <p>NOTE: DIMMs must be installed in quads. Therefore, memory modules must be ordered two (2) at a time, to reach quads (4) to be installed.</p>

Step 3: Choose Additional Options for Factory Integration



Configuration Information - Factory Integrated Models

HP Hard Drives

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 1.2TB 12G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	785079-B21
HP 900GB 12G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	785075-B21
HP 600GB 12G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	785073-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581284-B21
HP 300GB 12G SAS 15K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	785099-B21
HP 450GB 12G SAS 15K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	785101-B21
HP 600GB 12G SAS 15K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	785103-B21
HP 300GB 12G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	785071-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21

NOTE: Though the disks are 6Gb/12Gb, implementation of the embedded HP Smart Array SAS RAID controller limits performance of disks

12G SAS Hot Plug Enterprise Performance Solid State Drives

HP 200GB 12G SAS Write Intensive SFF 2.5-in 3yr Wty Solid State Drive	802576-B21
HP 400GB 12G SAS Write Intensive SFF 2.5-in 3yr Wty Solid State Drive	802580-B21
HP 800GB 12G SAS Write Intensive SFF 2.5-in 3yr Wty Solid State Drive	802584-B21
HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21

HP Ethernet

Mezzanine Options

NOTE: Provides four additional 1GbE ports.

HP NC360m Dual Port 1GbE BL-c Adapter	445978-B21
---------------------------------------	------------

NOTE: Provides two additional 1GbE ports.

HP NC532m Dual Port 10GbE Multifunction BL-c Adapter	467799-B21
--	------------

NOTE: The NC532m 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 NC532m requires a minimum of 2 GB of server memory.

NOTE: The NC522m supports linking only at 1000Mbps or 10000Mbps when not connected to the HP Virtual Connect Flex-10 Ethernet Module.

HP NC552m 10Gb 2-port Flex-10 Ethernet Adapter	610609-B21
--	------------

NOTE: Provides Flex-10 connectivity when used in conjunction with the HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem Option (P/N 455880-B21).

HP FlexFabric

Mezzanine Options

HP NC553m 10Gb 2-port FlexFabric Adapter	613431-B21
--	------------

NOTE: Provides Ethernet and FCoE connectivity when used in conjunction with HP Virtual Connect FlexFabric 10Gb/24-Port Module (PN 571956-B21).

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

HP NC551m:

http://h18004.www1.hp.com/products/quickspecs/13649_div/13649_div.html

HP NC553m:

http://h18004.www1.hp.com/products/quickspecs/13737_div/13737_div.html

HP Virtual Connect FlexFabric Module

http://h18004.www1.hp.com/products/quickspecs/13652_div/13652_div.html

Configuration Information - Factory Integrated Models

HP Fibre Channel Mezzanine Options	QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem NOTE: BL870c i2 supports HP Virtual Connect Fibre Channel Interconnect Modules. See: http://www.hp.com/go/bladefsystem/virtualconnect for complete details.	451871-B21 456972-B21
HP Infiniband Mezzanine Options	HP 4X QDR InfiniBand ConnectX-2 Dual Port Mezzanine HCA for c-Class BladeSystem NOTE: Provides DDR/QDR InfiniBand connectivity when used in conjunction with HP BLc 4X QDR IB Switch for HP BladeSystem c-Class (PN 489184-B21). NOTE: For more support details, please visit the following web-page: http://www.hp.com/products1/serverconnectivity/adapters/infiniband/specifications.html	592519-B21
HP Security - TPM	HP Integrity BL8x0c i2 Trusted Platform Module NOTE: The TPM must be installed by the factory.	AM331A

Step 4: Choose Additional Options for Field Upgrades

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

HP BladeSystem c-Class Enclosures 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 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>

Additional Options

HP Ethernet Mezzanine Options

HP NC364m Quad Port 1GbE BL-c Adapter

NOTE: Provides four additional GbE ports.

HP NC360m Dual Port 1GbE BL-c Adapter

NOTE: Provides two additional GbE ports.

HP NC552m 10Gb 2-port Flex-10 Ethernet Adapter

NOTE: Provides Flex-10 connectivity when used in conjunction with the HP Virtual Connect Flex 10Gb Ethernet Module for the c-Class BladeSystem Option (P/N 455880-B21).

HP NC532m Dual Port 10GbE Multifunction BL-c Adapter

NOTE: The NC532m 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 c30 Enclosure).

NOTE: The NC532m requires a minimum of 2 GB of server memory.

NOTE: The NC522m supports linking only at 1000Mbps or 10000Mbps when not connected to the Virtual Connect Flex-10 Ethernet Module.

NOTE: Provides Flex-10 connectivity when used in conjunction with the HP Virtual Connect Flex 10Gb Ethernet Module for the c-Class BladeSystem Option (P/N 455880-B21).

HP FlexFabric Mezzanine Options

HP NC553m 10Gb 2-port FlexFabric Adapter

NOTE: Provides Ethernet and FCoE connectivity when used in conjunction with HP Virtual Connect FlexFabric 10Gb/24-Port Module (PN 571956-B21).

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

HP NC551m: http://h18004.www1.hp.com/products/quickspecs/13649_div/13649_div.html

HP NC553m:

http://h18004.www1.hp.com/products/quickspecs/13737_div/13737_div.html

HP Virtual Connect FlexFabric Module

http://h18004.www1.hp.com/products/quickspecs/13652_div/13652_div.html

HP Fibre Channel Mezzanine Options

Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem

QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem

HP Processors (field upgrade only)

Quad-Core Processors

HP BL8x0c i2 Itanium 9320 (1.33GHz/4-core/16MB/155W) Processor Kit

HP BL8x0c i2 Itanium 9340 (1.6GHz/4-core//20MB/185W) Processor Kit

HP BL8x0c i2 Itanium 9350 (1.73GHz/4-core/24MB/185W) Processor Kit

Dual-Core Processor

HP BL8x0c i2 Itanium 9310 (1.6GHz/2-core/10MB/130W) Processor Kit

NOTE: HP Integrity BL870c i2 processor upgrade kits contain one processor. Processors in a given server blade must be identical. No mixing of processor models is allowed.

NOTE: The Integrity BL870c i2 only supports 2, 3 or 4 processor configurations.

HP Memory

HP Integrity BL8x0c i2 8GB (2x4GB) PC3-10600 Registered CAS 9 Memory Kit

HP Integrity BL8x0c i2 16GB (2x8GB) PC3-10600 Registered CAS 9 Memory Kit

HP BL8x0c i2 32GB (2x16GB) PC3-10600 Registered CAS-9 Memory Kit

NOTE: Memory Modules consist of duals of DIMMs

DIMMs must be installed in quads. Therefore, memory modules must be ordered two (2) at a time reach quads (4) to be installed.

NOTE: DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the lowest numbered slots.

Additional Options

HP Hard Drives

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 1.2TB 12G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive

HP 900GB 12G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive

HP 600GB 12G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive

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

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

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

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

HP 300GB 12G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive

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

NOTE: Though the disks are 6Gb/12Gb, implementation of the embedded HP Smart Array SAS RAID controller limits performance of disks

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

http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)

12G SAS Hot Plug Enterprise Performance Solid State Drives

HP 200GB 12G SAS Write Intensive SFF 2.5-in 3yr Wty Solid State Drive

HP 400GB 12G SAS Write Intensive SFF 2.5-in 3yr Wty Solid State Drive

HP 800GB 12G SAS Write Intensive SFF 2.5-in 3yr Wty Solid State Drive

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

http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html (Worldwide)

HP Integrity Upgrade Kits

HP Integrity BL8x0c i2 Upgrade Blade

NOTE: At least one (1) processor must be purchased with each upgrade blade; other components may also be ordered. All processors in the upgraded server blade must be of the same type.

HP Integrity BL2 Blade Link Upgrade

NOTE: Required for BL870c i2 server blade used in odd slot of c7000 or c3000 Enclosures.

HP Integrity BL2-c7E Blade Link Upgrade

NOTE: Required for BL870c i2 server blade used in even slot of c7000 Enclosure.

HP Integrity BL2-c3E Blade Link Upgrade

NOTE: Required for BL870c i2 server blade used in even slot of c3000 Enclosure.

HP Integrity BL4 Blade Link Upgrade

NOTE: Required for BL890c i2 server blade used in c7000 Enclosure.

HP Integrity BL4-c3 Blade Link Upgrade

NOTE: Required for BL890c i2 server blade used in c3000 Enclosure.

HP Smart Array Controller

HP Smart Array P711m/1G 6Gb FBWC 4-ports Ext Mezzanine SAS Controller

NOTE: The P711M will function as a SAS RAID controller when connected to MDS600 disk subsystem via the HP BLc 6Gb SAS Switch. In the RAID mode, HP-UX 11i v3 is supported.

NOTE: The P711mM will function as a Pass-Thru when connected to the HP P2000G3 SAS Storage Array via the HP BLc 6Gb SAS Switch. In the Pass-Thru mode, HP-UX 11i v3 is supported.

For more details please see QuickSpec:

http://h18004.www1.hp.com/products/quickspecs/14035_div/14035_div.html

Optional Upgrade

HP Smart Array P-Series Low Profile Battery

NOTE: The P700M will function as a SAS RAID controller when connected to MDS600 disk

Additional Options

subsystem via the Storage 3Gb SAS Switch. In the RAID mode, HP-UX 11i v3 and Integrity for Windows 6.2 are supported.

NOTE: The P700M will function as a Pass-Thru when connected to the MAS2300sa G2 SAS Storage Array via the Storage 3Gb SAS Switch. In the Pass-Thru mode, HP-UX 11i v3 and Integrity for Windows 6.2 are supported.

NOTE: The optional battery is required for Advanced Data Guarding (enabled with SSAP), RAID 6 is highly recommended for RAID 5 implementations.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13175_div/13175_div.html

HP Infiniband Mezzanine Options

HP 4X QDR InfiniBand ConnectX-2 Dual Port Mezzanine HCA for c-Class BladeSystem

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12586_div/12586_div.html

HP Ethernet Interconnects

HP Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13652_div/13652_div.html

HP Storage Blade

HP D2200sb PCIe Storage Blade

NOTE: Please see QuickSpecs for Technical Specifications and additional options at: http://h18004.www1.hp.com/products/quickspecs/13714_div/13714_div.html

HP USB Options

HP Integrity USB External DVD/RW Drive

NOTE: The HP Integrity USB External DVD-RW drive solution includes the External DVD drive (AT120B) with 9 inch USB cable, power adaptor, power cable and Y-connector and 6-foot USB extension cable.

NOTE: The USB Y-connector goes between the extension cable and the 9-inch USB cable fixed DVD drive.

NOTE: The Y-connector should NOT be placed between the server blade and the 6-foot Extension cable.

HP Care Pack Services

HP offers a range of support services and additional services. For a complete listing of services, HP.com external site: <http://www.hp.com/services/bladessystemservices>

HP Critical Service

HP CP 1Y Critical Service

HP CP 3Y Critical Service

Installation Services

HP CP Installation

NOTE: For more information: <http://www.hp.com/services/bladessystemservices>.

Memory

DIMM installation guidelines:

1. All DIMMs must be DDR3 registered memory modules (R-DIMMs)
2. All four DIMM slots in a memory bank must be populated. For each CPU, the memory banks are designated as follows: first bank consists of pairs A and B, second bank consists of pairs C and D and the third bank consists of pairs E and F.
3. Banks must be populated in sequential Alphabetic order, starting with bank A and B for CPU0, followed by banks A and B for CPU1, etc.
4. All four DIMMs in a memory bank must be identical. Install identical DIMMs in quads, starting with DIMM pairs A and B CPU0.
5. DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the smallest numbered DIMM slot.

HP Integrity BL870c i2 Server Blade

Standard Memory

16 GB Registered PC310600 DDR3 1333MHz ECC DIMMs (4 x 4 GB)
Memory Bus Bandwidth:4.8GT/s

Standard Memory Plus Optional Memory

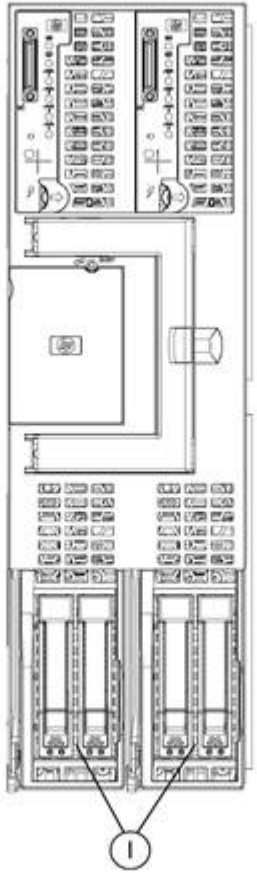
Up to 768GB of DDR3 registered memory is available.

Following are memory options available from HP:

HP Memory	HP Integrity BL8x0c i2 8GB (2x4GB) PC3-10600 Registered CAS 9 Memory Kit	AM327A
	HP Integrity BL8x0c i2 16GB (2x8GB) PC3-10600 Registered CAS 9 Memory Kit	AM328A
	HP BL8x0c i2 32GB (2x16GB) PC3-10600 Registered CAS-9 Memory Kit	AM363A
	NOTE: Must be installed in quads. Therefore, must install two (2) AM327 memory modules at a time.	
	NOTE: DIMMs must be installed in decreasing capacity with the largest DIMMs smallest numbered slot.	

Storage

1-4 4 x SFF SAS Hot Plug Hard Drives



Hard Drives

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

SAS Hard Drive

	Quantity Supported	Position Supported	Controller
1.2TB 12G 10K SFF	4	1-4	HP Smart Array P410i Controller
900GB 12G 10K SFF			
600GB 12G 10K SFF			
450GB 6G 10K SFF			
300GB 12G 10K SFF			
300GB 12G 15K SFF			
450GB 12G 15K SFF			
600GB 12G 15K SFF			
146GB 6G 15K SFF			

6G SAS Hot Plug Enterprise Performance Solid State Drives

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

	Quantity Supported	Position Supported	Controller
200GB/400GB/800GB 12G SLC SFF	2	1-2	HP Smart Array P410i Controller

Power Specifications

NOTE: The HP Power Advisor is a tool provided by Hewlett-Packard to assist in the estimation of power consumption and proper selection of components including power supplies at a system, rack, and multi-rack level. A variety of additional features are also provided including a condensed bill of materials, a cost of ownership calculator, and a power report. For additional information please visit: HP Power Advisor: <http://h18004.www1.hp.com/products/solutions/power/index.html>

Technical Specifications

System Unit	Dimensions	Height	14.42 in (36.63 cm)
		Depth	20.05 in (50.93 cm)
		Width	4.13 in (10.49 cm)
	Shipping Dimensions	Height	20.28 in (51.51 cm)
		Depth	26.57 in (67.49 cm)
		Width	11.42 in (29.00 cm)
	Weight	Maximum	53 lbs. (24.04 kg)
	Temperature Range*	Operating	10° to 35° C (50° to 95° F)
		Non-Operating	-40° to 60° C (-40° to 140° F)
		Storage	-20° to 60° C (-4° to 140° F)
		Maximum Wet Bulb Temperature	30° C (86° F)
	Relative Humidity**	Operating	15% to 80%
Shipping		10% to 90%	
Storage		10% to 90%	

*All temperature ratings shown are for sea level. An altitude derating of 1°C per 304.8 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Upper operating limit is 3,048m (10,000 ft) or 70 Kpa/10.1 psia. Upper non-operating limit is 9,144 m (30,000 ft) or 30.3 KPa/4.4 psia.

**Storage maximum humidity of 90% is based on a maximum temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

SAS RAID HP p410i Controller	Disk Drive and Enclosure Interface	3Gb SAS (Serial Attached SCSI)
	SAS Connectors	4 internal (SFF8484) x4 wide port connectors.
	Cache Memory Speed	DDR2-800 memory provides up to 4.2GB/s maximum bandwidth
	Server Interface	X1 5.0Gbps PCIe provides 1.0GB/s maximum bandwidth
	SAS Speed	Fourx1 3G SAS provides 1200MB/s maximum bandwidth.
	Cache Memory	Not supported.
	Logical Drives Supported	Up to 2 logical volumes
	Maximum Logical Drive Capacity	Up to 64 logical
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 0 (striping), RAID 1 (mirroring), and 1+0 (Mirroring and striping) (not supported with BL8x0c i2 blades)
	Upgradeable Firmware	Upgradeable Firmware with Recovery ROM features Online Drive Flash requires 256MB, 512MB, or 1GB cache module

Embedded Dual NC532i Broadcom BCM57711E 10 Gigabit NICs with Flex-10 support	Network Interface	1000Base-SX IEEE 802.ip QoS, 802.3x flow control, and 802.3ap 10Gb Base-KR
	Compatibility	IEEE 802.3ab 1000Base-Sx
	Data Transfer Method	PCI Express, four lanes (x4)
	Network Transfer Rate (Theoretical Maximum Values)	1Dual 10Gb ports offer up to 40Gb/s bidirectional theoretical throughput

Technical Specifications

Environment-friendly Products and Approach

End-of-life Management and Recycling

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

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

Summary of Changes

Date	Version History	Action	Description of Change:
01-Jun-2015	From Version 21 to 22	Changed	Information updated in storage section.
		Added	Skus added in Configuration Information - Factory Integrated Models and Core options <ul style="list-style-type: none"> 802576-B21 802580-B21 802584-B21
30-Mar-2015	From Version 20 to 21	Removed	Skus removed in Configuration Information - Factory Integrated Models and core options <ul style="list-style-type: none"> 632492-B21 632494-B21
		Changed	Configuration Information - Factory integrated models and Storage sections were updated
01-Dec-2014	From Version 19 to 20	Added	Skus Added: <ul style="list-style-type: none"> 785079-B21 785075-B21 785073-B21 785099-B21 785101-B21 785103-B21 785071-B21
		Removed	Skus deleted: <ul style="list-style-type: none"> 718160-B21 619291-B21 581286-B21 627117-B21 507127-B21
		Changed	Standard Features, Support Services, Configuration Information - Factory Integrated Models, Core Options and Memory sections were updated
18-Apr-2014	From Version 18 to 19	Added	Technology Services for Integrity Servers and Protect your business beyond warranty with HP Care Pack Services sections were added to Support Services
		Removed	Obsolete skus deleted: <ul style="list-style-type: none"> 507125-B21 512545-B21 580151-B21 508226-B21 411243-B21 BS580A AQ697A
		Changed	Service and Support and Basic Care were revised.
10-Dec-2013	From Version 17 to 18	Added	HP 1.2TB 6G SAS 10K rpm SFF Dual Port Enterprise 3yr Warranty Hard Drive was added to Hard Drives.
24-Sep-2012	From Version 16 to 17	Changed	Changes made in Standard Features section.
07-May-2012	From Version 15 to 16	Changed	Memory was revised throughout.
10-Feb-2012	From Version 14 to 15	Changed	Changes made to the USB Options sections. And the Support Services section was added.

Summary of Changes

14-Nov-2011	From Version 13 to 14	Changed	FlexFabric Support, Smart Array Controller Support, Supported Software Options, HP FlexFabric Mezzanine Options and Hard Drives were revised.
30-Sep-2011	From Version 12 to 13	Changed	Changes made within the Overview, Standard Features, Configuration Information and Options sections.
02-Aug-2011	From Version 11 to 12	Changed	Hard Drives Descriptions changes made.
20-Jun-2011	From Version 10 to 11	Changed	6G SAS Hot Plug Enterprise Performance Solid State Drives were added to Hard Drives HP Ultrium Tape Drives removed from Additional Options
09-May-2011	From Version 9 to 10	Changed	Processor descriptions were revised Maximum internal storage was increased to 3.6TB HP 900GB 6G SAS 10K rpm SFF Enterprise Drive was added to Hard Drives
15-Apr-2011	From Version 8 to 9	Added	FlexFabric Support and InfiniBand Support were added to Standard Features HP BLc NC551m Dual Port FlexFabric 10Gb Converged Network Adapter was added to HP Ethernet Mezzanine Options HP c-Class Mezzanine Options was added to Step 3 HP Ethernet Interconnects was added to Additional Options
18-Mar-2011	From Version 7 to 8	Changed	Models, Processors, Memory and Fibre Channel Mezzanine Options product descriptions were revised HP USB Options was added to Standard Features and Additional Options
15-Nov-2010	From Version 6 to 7	Changed	Maximum memory was increased to 768GB, Smart Array Controllers and HP Ultrium Tape Blade product descriptions were modified, Intel Itanium Processor 9310 was added, HP BL8x0c i2 32GB (2x16) PC3-10600R-9 Kit was added to Memory, HP Integrity Upgrade Kits was added to Additional Options and SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives were removed from Hard Drives.
08-Oct-2010	From Version 5 to 6	Changed	Hot Plug SAS Maximum Internal Storage was increased to 2.4TB, 8Gb Fibre Channel Host Bus Adapter product descriptions were revised in Fibre Channel on the HP Integrity BL870c i2 server blade, Smart Array Controller Support was revised and HP 450GB and 600GB 6G SAS 10K rpm SFF Dual Port Enterprise Hard Drives were added to Hard Drives.
20-Aug-2010	From Version 4 to 5	Changed	Note was added to HP Onboard Administrator in Glossary of Integrity Server Blades Management Software Product Description and HP BladeSystem c3000 tower enclosure was removed from At A Glance Enclosures.
09-Aug-2010	From Version 3 to 4	Changed	Revised the images to reflect the correct callout line style.
19-Jul-2010	From Version 2 to 3	Changed	Maximum memory was increased to 384 GB Hard Drive and Ethernet Mezzanine Options descriptions were revised Power Specifications note was completely revised What's New was added to Overview OpenVMS 8.4 and Microsoft Windows Server 2008 for

Summary of Changes

			Itanium-based systems were added to OS Systems HP BL8x0c i2 16GB Memory was added HP Integrity BL870c i2 Bundles were added to Core Options
07-May-2010	From Version 1 to 2	Changed	Changes made within the Standard Features, Models and Technical Specifications sections.

© Copyright 2015 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice.

Microsoft and Windows NT are US registered trademarks of Microsoft Corporation. Intel, the Intel logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

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