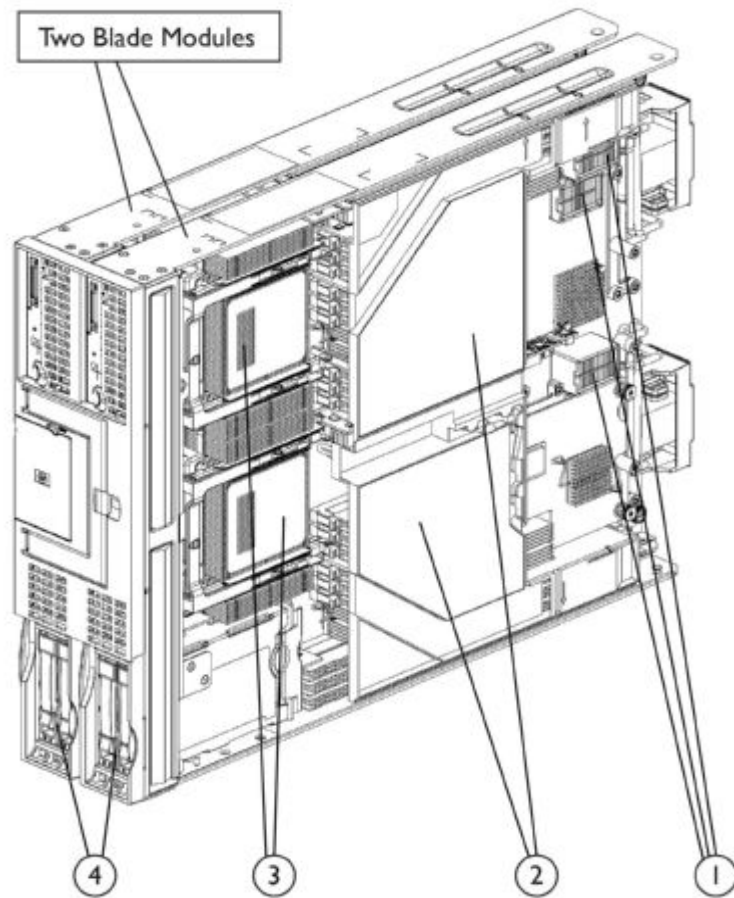*Overview*

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 200GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive
- Support for HP 400GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive
- Support for HP 900GB 6G SAS 10K SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive
- Support for HP NC551m Dual Port 10Gb FlexFabric Adapter (Ethernet and FCoE)

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

Overview

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 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) PC3 10600 Registered CAS9 memory 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) embeddedNC532i 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 NC551m Dual Port 10Gb FlexFabric 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 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
    - 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

Overview

- HP Virtualization Manager
  - HP Global Workload Manager and HP-UX Workload Manager
  - HP Insight Dynamics infrastructure orchestration
  - HP Systems Insight Manager
  - Partitioning Continuum
    - 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

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	PC3 10600 Registered CAS 9 memory module
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 **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 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	Integrity Integrated Lights-Out 3 (iLO 3) Factory installed Integrity iLO 3 Advanced Pack license HP BladeSystem c-Class Onboard Administrator HP BladeSystem c-Class Virtual Connect

Standard Features

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	
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   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 NC551m Dual Port FlexFabric 10Gb Converged Network Adapter

NOTE: Supported with HP Virtual Connect FlexFabric 10Gb/24-Port Module only (571956-B21)
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 HP-UX support.
http://h18004.www1.hp.com/products/quickspecs/13649_div/13649_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 592519-B21)

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-B21).
- For details specifications, please visit:
  http://www.hp.com/products1/serverconnectivity/adapters/infiniband/specifications.html

Standard Features

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:

HP Smart Array P700m/512 4-ports Ext PCIe x8 SAS Controller (PN 508226-B21)

- Provides support for HP Zoned Storage for BladeSystem
- Zoned Storage solution requires compatible HP Storage 600 Modular Disk System and HP Storage 3Gb SAS BL Switch
- Optional HP Smart Array Cache Battery Kit (BBWC) (PN 383280-B21)
- BBWC is required for RAID 6 and highly recommended for RAID 5
- Supports RAID 6 with Advanced Data Guarding (ADG)
- Provides support for HP Storage MSA2000sa
- Support for MSA2000sa also requires HP Storage 3Gb SAS BL Switch

NOTE: For additional details please see:
http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayp700m/index.html

HP USB Options   External USB DVD drive with 7 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
- 7-foot USB extension cable

NOTE: The USB extension cable (PN SH046AA) will be added automatically when the drive is ordered.
NOTE: The USB Y-connector goes between the extension cable (SH046AA) and the 9-inch USB cable fixed with DVD drive.
NOTE: The Y-connector should NOT be placed between the server blade and the 7-foot Extension cable.

Standard Features

Integrity Server Blades Management Software and HP Integrity Essentials Software Plug-ins

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 Insight 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 OE)
- **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 BL870c i2 servers)
- **Protect**
  - HP-UX Bastille
  - Secure Resource Partitions
  - Data Protector Software
  - Software Assistant (SWA)
- **Optimize**
  - HP Capacity Advisory
  - HP Virtualization Manager
  - 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 blades
- **Learn More**
  - For additional information on HP Integrity server blade management software please visit:
    http://h18004.www1.hp.com/products/servers/integrity-bl/c-class/860c/compmatrix.html

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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 environments including blade servers, enclosure infrastructures, racks, and integrated switches, via automatically generated blade rack picture views and hierarchical trees. Users are

Standard Features

	able to conveniently configure, deploy, and 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 blades into 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 a system's availability and performance. It is an integrated product that includes HP GlancePlus. As an integrated product, the GlancePlus Pak 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 onto multiple PA-RISC and/or Integrity servers on a network. It can also be used to create custom install configurations, or golden images, recover systems 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.
HP Virtualization Manager	The configuration management component of HP Insight Dynamics - VSE, 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 physicals 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 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's HP Insight Display, the Onboard Administrator has been designed for both local and remote administration of HP BladeSystem c-Class. This module and its firmware provides:

- 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

Standard Features

- Thermal Logic power and cooling information and control

NOTE: Please see: http://www.hp.com/go/onbaordadministrator for more 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 Continentalclusters. 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 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, or HP 9000 and HP Integrity servers running HP-UX 11i. By aggregating data from HP Insight Management Agents and other management tools, the 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. The 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.
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 security bulletins for HP-UX software.
HP-UX Workload Manager	HP-UX Workload Manager (HP-UX WLM) is a resource management tool that provides automatic CPU resource allocation and application performance management based on your service-level objectives (SLOs) 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. (A 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 v3, 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 Dynamics - VSE. HP Global Workload Manager (gWLM), is an intelligent policy engine that automatically allocates resources among multiple workloads to increase server utilization while meeting service levels for high-priority applications. Designed to work across multiple

Standard Features

	HP-UX 11i, OpenVMS and Linux environments, the workload management features are ideal for large, 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 and virtual 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 automatically 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 is 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 peak system load. HP PRM can manage allocation of the following resources: ● 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; can also cap 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 level security and proven resource management to stack multiple applications within the same operating system. HP Process Resource Manager and HP-UX Workload Manager can dedicate specific resources to specific applications within an operating system image, avoiding resource contention issues. Using HP-UX 11i v3 Security Containment, organizations can ensure that application instances cannot access processes or files from other applications or the system. This ensures that multiple application instances run securely in a consolidated environment, providing the benefits of consolidation while preserving the security of a scale out environment. For software licensing purposes, the maximum number of CPUs in a Secure Resource Partition can be capped.
Software Distributor-UX	Software Distributor (SD) is the HP-UX administration tool set used to deliver and maintain HP-UX operating systems and layered software applications. SD is delivered as part of HP-UX; you do not need to download it separately.

Standard Features

Insight Control for BladeSystem Management

Insight Control for BladeSystem delivers foundation management for HP BladeSystem lifecycles, including hardware resource deployment, health monitoring, software version control, performance monitoring, and power management.

Integrity blades are supported with the following ICE components, installed automatically when using the wizard-based integrated installer:

- HP Systems Insight Manager
- Extensions for SIM on Microsoft Windows CMS (to manage HP-UX)
- HP BladeSystem Integrated Manager
- Insight Power Manager

NOTE: For Licensing and Packaging Options please see the options section of this QuickSpecs.
NOTE: Insight Control Environment for BladeSystem is delivered with HP BladeSystem c-Class enclosures with either 8 or16-server licenses, or 8 server evaluation licenses (30-days). For additional information on HP BladeSystem c-Class Infrastructure please visit: HP BladeSystem c-Class Infrastructure QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12517_div/12517_div.html

NOTE: For additional product and licensing information about Insight Control Environment, HP Systems Insight Manager and Essentials software refer to:
http://www.hp.com/servers/proliantessentials.

OS Support

HP-UX 11i v3 Data Center Operating Environment (DC-OE)
HP-UX 11i v3 Virtual Server Environment (VSE-OE)
HP-UX 11i v3 High Availability Environment (HA-OE)
HP-UX 11i v3 Base Operating Environment (BOE)

NOTE: For more complete and up to date information on HP-UX 11i support, please visit the HP-UX 11i website at: www.hp.com/go/hpux11iblades.

OpenVMS 8.4 (choice of Mission Critical, Enterprise, or Foundation Operating Environment)
NOTE: For more complete and up to date information on OpenVMS support, please visit the OpenVMS website at: www.hp.com/go/openvms

Microsoft Windows Server 2008 for Itanium-based systems
NOTE: For more complete and up to date information on Windows support, please visit the Windows website at: www.hp.com/go/integrity/windows

Supported Software Options

HP Insight Dynamics - VSE for HP Integrity servers (included within both the VSE-OE and DC-OE), which includes the following capabilities for Integrity blades:

HP Integrity Virtual Machines for HP-UX
HP Virtualization Manager
HP Capacity Advisor
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

Standard Features

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) and 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 Advanced Pack 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 on 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 memory (PC3 10600 Registered CAS 9 memory)
- 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*

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 power, 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
-
-

Standard Features

- SSL encryption on web console
- Trusted Platform Module (TPM) option for secure cryptographic key storage, integrates with HP-UX 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 time to 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 security features designed to protect data in its three forms, HP-UX 11i customers can minimize possible breaches not only in terms of data loss, but in customer trust as well. Several security features offer data protection capabilities to HP-UX customers:

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

Protecting Identity:

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

- Identity Management Integration
-

Standard Features

- 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 IT 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 (vPars)

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 Blades, HP BladeSystem, HP 9000 servers as well as the MSA1xxx, 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. For additional information please visit: http://h30099.www3.hp.com/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, desktops, 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
- Support Plus 24 - 24x7x365 onsite hardware and over-the-phone Software Support for HP and selected multi vendor products, plus software updates at substantial subscription savings
- Support Plus - the economical choice for single-source hardware/Software Support delivered during extended business hours, as well as cost-saving software updates

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, 7 days 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.

Standard Features

For a complete listing of service offerings and information visit:
http://www.hp.com/services/bladesystemservices
http://www.commoncriteriaportal.org/files/epfiles/hp-ux11iv2.pdf.

Models

Base Models

HP Integrity BL870c i2 Base Unit for c7000 Enclosure AH383A	**Processor(s)** Supports up to four (4) processors	Four (4) processor sockets; processor modules are configured to order.
	Cache Memory All processor models	Included with processors.
HP Integrity BL870c i2 Base Unit for c3000 Enclosure AM329A	**Memory**	Forty eight (48) DIMM sockets; memory DIMMs are configured to order.
	Network Adapter	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. One (1) additional 10/100 NIC dedicated to Integrity iLO 3 Management
	Storage Controller	Integrated HP Smart Array p410i SAS Controller
	Hard Drives	Four SFF SAS drive bays; hard disk drives are configured to order.
	IO expansion	Six PCIe mezzanine card slots (PCIe Gen2 x8 interface); mezzanine card are configured to order
	Optical Drive	None internal to blade server
	Integrity iLO 3	Integrity iLO 3 Advance Pack license included
	Form Factor	Supports up to 2 BL870c i2 in HP BladeSystem c3000 Enclosure Supports up to 4 BL870c i2 in HP BladeSystem c7000 Enclosure

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	HP Integrity BL870c i2 c7000 Server Blade	AH383A
	NOTE: Choose the base models.	
	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)	
	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).	
	HP Integrity BL870c i2 c3000 Server Blade	AM329A
	NOTE: Choose the base models.	
	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)	
	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).	

Configurable Model ships with:

Eight embedded 10 Gigabit Ethernet NIC ports with Flex-10 support plus (1) additional 10/100 NIC dedicated to Integrity iLO 3 Management

Two Integrated HP p410i hardware RAID controller

Four small form factor (SFF) SAS hot plug hard drive bays

HP Integrity Integrated Lights-Out 3

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

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

Step 3: Choose Additional Options for Factory Integration

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

Configuration Information - Factory Integrated Models

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives		
	HP 900GB 6G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	619291-B21
	HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581286-B21
	HP 450GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581284-B21
	HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
	HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
	HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
	HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
	NOTE: Though the disks are 6Gb, implementation of the embedded HP Smart Array p410i SAS RAID controller limits performance of disks to 3Gb.	
	6G SAS Hot Plug Enterprise Performance Solid State Drives	
	HP 200GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632492-B21
	HP 400GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632494-B21
HP Ethernet Mezzanine Options	HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21
	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 Flex-10 10GbE 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 BLc NC551m Dual Port FlexFabric 10Gb Converged Network Adapter	580151-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: http://h18004.www1.hp.com/products/quickspecs/13649_div/13649_div.html **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/13652_div/13652_div.html	
HP Fibre Channel Mezzanine Options	QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	451871-B21
	Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	456972-B21
	NOTE: BL870c i2 supports HP Virtual Connect Fibre Channel Interconnect Modules. See: http://www.hp.com/go/bladesystem/virtualconnect for complete details.	
HP c-Class Mezzanine Options	HP 4X QDR IB CX-2 Dual Port Mezz HCA for HP BladeSystem c-Class	592519-B21
	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	

Configuration Information - Factory Integrated Models

HP Security - TPM	HP BL8x0c i2 Trusted Platform Module Kit	AM331A
	NOTE: 0D1 is required if the TPM is selected. The TPM must be installed by the factory.	

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

Core Options

HP Ethernet Mezzanine Options	HP BLc NC364m Quad Port 1GbE Adapter **NOTE:** Provides four additional GbE ports.	447883-B21
	HP BLc NC360m Dual Port 1GbE Adapter **NOTE:** Provides two additional GbE ports.	445978-B21
	HP NC532m Dual Port Flex-10 10GbE 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 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. **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).	467799-B21
	HP BLc NC551m Dual Port FlexFabric 10Gb Converged Network Adapter **NOTE:** Provides Ethernet and FCoE connectivity when used in conjunction with HP Virtual Connect FlexFabric 10Gb/24-Port Module. **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/13649_div/13649_div.html **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/13652_div/13652_div.html	580151-B21
HP Fibre Channel Mezzanine Options	Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	456972-B21
	QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	451871-B21
HP Processors (field upgrade only)	**Quad-Core Processors**	
	HP BL8x0c i2 Itanium 9320 (1.33GHz/4-core/16MB/155W) Processor Kit	AH386A
	HP BL8x0c i2 Itanium 9340 (1.6GHz/4-core//20MB/185W) Processor Kit	AH387A
	HP BL8x0c i2 Itanium 9350 (1.73GHz/4-core/24MB/185W) Processor Kit	AH388A
	Dual-Core Processor	
	HP BL8x0c i2 Itanium 9310 (1.6GHz/2-core/10MB/130W) Processor Kit	AH385A
	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 BL8x0c i2 8GB (2x4GB) PC3-10600 Registered CAS 9 Memory Kit	AM327A
	HP BL8x0c i2 16GB (2x8GB) PC3-10600 Registered CAS 9 Memory Kit	AM328A
	HP BL8x0c i2 32GB (2x16GB) PC3-10600 Registered CAS-9 Memory	AM363A
	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, to reach quads (4) to be installed. **NOTE:** DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the lowest numbered slots.	

Core 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 900GB 6G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	619291-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581286-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581284-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21

NOTE: Though the disks are 6Gb, implementation of the embedded HP Smart Array p410i SAS RAID controller limits performance of disks to 3Gb
NOTE: Please see the QuickSpecs for Technical Specifications and additional information related to HDDs:
http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)

6G SAS Hot Plug Enterprise Performance Solid State Drives

HP 200GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632492-B21
HP 400GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632494-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information related to HDDs:
http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html (Worldwide)

HP Integrity BL870c i2 Bundles	HP Integrity BLc3000 4-socket Server Kit	AM344A
	NOTE: The 4-socket server kit (P/N AM344A) includes a c3000 enclosure with DVD, (1) OA module, (4) 1200W Hot Plug AC power supplies, and (6) Active Cool 100fans. A BL870c i2 (P/N AM329A#001) server blade is pulled in by the ordering tool when P/N AM344A is ordered.	
	HP Integrity BLc7000 4-socket Expansion Server Kit	AM345A
	NOTE: The 4-socket expand server kit (P/N AM345A) includes a c7000 enclosure with (2) OA modules, (6) 2400W High Efficiency FIO Power Supplies, and (10) Active Cool 200 fans. A BL870c i2 (P/N AH383A#001) server blade is pulled in by the ordering tool when P/N AM3445 is ordered.	

Additional Options

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.	AM360A
	HP Integrity Upgrade BL2 Blade Link **NOTE:** Required for BL870c i2 server blade used in odd slot of c7000 or c3000 Enclosures.	AM358A
	HP Integrity Upgrade BL2-c7E Blade Link **NOTE:** Required for BL870c i2 server blade used in even slot of c7000 Enclosure.	AM364A
	HP Integrity Upgrade BL2-c3E Blade Link **NOTE:** Required for BL870c i2 server blade used in even slot of c3000 Enclosure.	AM365A
	HP Integrity Upgrade BL4 Blade Link **NOTE:** Required for BL890c i2 server blade used in c7000 Enclosure.	AM359A
	HP Integrity Upgrade BL4-c3 Blade Link **NOTE:** Required for BL890c i2 server blade used in c3000 Enclosure.	AM366A
HP Smart Array Controller	**HP Smart Array P700m Controller** HP Smart Array P700m/512 4-ports Ext PCIe x8 SAS Controller	508226-B21
	Optional Upgrade HP Smart Array P-Series Low Profile Battery	452348-B21
	NOTE: The P700M will function as a SAS RAID controller when connected to MDS600 disk 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 and 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 c-Class 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	592519-B21
HP Ethernet Interconnects	HP BLc Virtual Connect FlexFabric 10Gb/24-port Module Option **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13652_div/13652_div.html	571956-B21

Additional Options

HP Storage SB40c Storage Blade	HP Storage SB40c Storage Blade	411243-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional options at: http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html (Worldwide)	

HP USB Options	HP Mobile USB DVD/RW Drive	BU516AA#ABA
	NOTE: The HP Mobile USB DVD/RW solution includes the DVD/RW Drive (BU516AA), power adaptor, power cable and USB Y-connector and 7-foot USB extension cable (SH046AA).	
	NOTE: HP Monster 700 A-A 7ft USB Extension Cable (SH046AA) will be added automatically when the drive is ordered.	
	NOTE: The USB Y-connector goes between the extension cable (SH046AA) and the 9-inch USB cable fixed with DVD drive.	
	NOTE: The Y-connector should NOT be placed between the server blade and the 7-foot Extension cable.	

HP Care Pack Services	HP offers a range of support services and additional services. For a complete listing of services, see: HP.com external site: http://www.hp.com/services/bladesystemservices	
	HP Critical Service	
	Hardware Only, Critical Service, 7-Day x 24 Hour, 1 Year	HA112A1
	Hardware Only, Critical Service, 7-Day x 24 Hour, 3 Years	HA112A3
	Installation Services	
	Integrity BL870c i2 Server Blade Hardware Installation	HA113A1
	NOTE: For more information: http://www.hp.com/services/bladesystemservices.	

Memory

DIMM installation guidelines:

1. All DIMMs must be PC3 10600 Registered CAS 9 memory modules (DD3)
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 PC3 10600 DDR3 1333MHz DIMM memory is available.

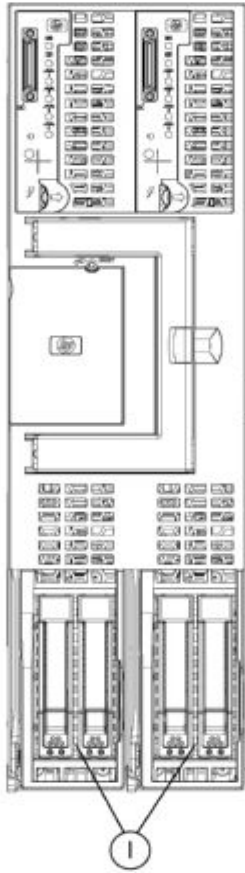Following are memory options available from HP:

HP Memory	HP BL8x0c i2 8GB (2x4GB) PC3-10600 Registered CAS 9 Memory Kit	AM327A
	HP BL8x0c i2 16GB (2x8GB) PC3-10600 Registered CAS 9 Memory Kit	AM328A
	HP BL8x0c i2 32GB (2x16GB) PC3-10600 Registered CAS-9 Memory	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
900GB 6G 10K SFF	4	1-4	HP Smart Array P410i Controller
600GB 6G 10K SFF			
450GB 6G 10K SFF			
300GB 6G 10K SFF			
146GB 6G 10K SFF			
146GB 6G 15K SFF			
72GB 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 6G SLC SFF	2	1-2	HP Smart Array P410i Controller
400GB 6G SLC SFF			

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 owner ship 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.