HP Integrity BL860c i2 Server Blade

Cost-effective mission-critical Converged Infrastructure

Data sheet

HP Integrity server blades, the first mission-critical Converged Infrastructure on the industry's #1 blade platform[1]

Data center sprawl is taking business processes to the breaking point. This is the result of the way IT infrastructures have been built for 40 years: Enterprises have purchased and deployed systems to support specific applications and workloads; those systems have been connected together in a piecemeal manner; and it has taken different teams, tools, and processes to manage them. These inflexible, monolithic, hard-wired, underutilized systems and complex processes require excessive manpower to operate, and they do not scale well. This has increased complexity, which in turn inhibits flexibility, innovation, and uptime.

Tomorrow's IT will be built on a Converged Infrastructure, which tackles these problems—as well as consolidation, modernization, shared services, and business continuity initiatives—by simplifying, consolidating, and automating everything from the start.

This is especially important for mission-critical environments due to the proliferation of technology that has created an instant world where everything is mobile, connected, interactive, immediate, and fluid—requiring IT to react to the speed of the businesses like never seen before.

HP mission-critical Converged Infrastructure

HP Integrity systems combine years of trusted HP Integrity resiliency with HP BladeSystem efficiencies. As the foundation of the world's first mission-critical Converged Infrastructure, Integrity systems:

- Simplify and unify IT with a common modular architecture from x86 to Superdome 2
- Always-on resiliency—a secure and reliable infrastructure from CPU to solution
- Dynamic Optimization—integrated management and virtualization to scale resources desirably
- Investment protection and stability—sustained innovation, decades of support life, and compelling value

Move toward a mission-critical Converged Infrastructure with the HP Integrity BL860c i2 server blade

The HP Integrity BL860c i2 server blade is a versatile and expandable two-socket blade that is ideal for application-tier and transaction workloads, database, Java, and technical computing applications. This server blade features the unique HP Blade Link technology, which combines multiple blades to create two-, four-, and eight-socket systems—providing greater scalability and flexibility. In addition, HP Virtual Connect Flex-10 offers increased network scalability and configuration flexibility with up to a 20x increase in networking bandwidth. With wire-once connectivity, IT administrators can manage all subsequent "rewiring" virtually, significantly reducing cabling. Plus, Integrity server blades offer double the performance in half the footprint,[2] with built-in resiliency and less power consumption. You can mix and match HP Integrity, HP ProLiant, and HP Storage blades within the same enclosure—offering flexibility to grow as your business demands change.

[1] **Source:** Q1/2011 IDC Quarterly Server Tracker, May 2011

[2] **Source:** Based on HP internal comparisons vs. comparably configured Integrity rack mount servers conducted in February 2010.

Key features and benefits

Scale up, scale out, scale within
The Integrity BL860c i2 server blade helps you scale up, scale out, and scale within your IT infrastructure by consolidating all tiers of critical applications on a common platform, thereby facilitating simple IT management. The BL860c i2 server blade offers:

- Up to two Intel® Itanium® processor 9300 series, providing eight cores of compute power
- 24 DIMM slots with up to 384 GB of DDR3 memory with double-chip spare
- Up to two disks, with a choice of hot plug small form factor (SFF) Serial Attached SCSI (SAS) hard disk drives, or solid state disks (SSD)
- Four embedded Flex-10 NICs with the option of adding up to three mezzanine cards to provide support for FCoE, SAS RAID, Fibre Channel, etc.
- Increased I/O bandwidth by 2x, with support for next-generation PCIe 2.0

Always-on resiliency
The built-in business continuity, resiliency, and availability features in the BL860c i2 server blade keep businesses running without interruption, with a two- to nine-times performance boost.

Key resiliency features include:

- Double-chip spare, providing 17x higher memory reliability than single-chip spare
- Intel Itanium processor 9300 series, providing up to 2x better reliability than industry volume processors through features such as Cache Safe Technology and error-hardened latches
- Network Equipment Building System (NEBS) Level 3 certification with –48 Vdc power supplies enable equipment operability in network facility environments

Industry-leading integrated infrastructure management
HP offers integrated infrastructure management tools that increase flexibility as they simplify complex infrastructure. Matrix Operating Environment is advanced infrastructure lifecycle management software that allows you to adjust instantly to dynamic business demands—so you can provision and modify a complex infrastructure in minutes. In a bladed environment, Matrix operating environment takes better approaches to provisioning, capacity planning, resource rebalancing, and power and cooling—which can cut the cost of common data center tasks. In addition, organizations can save both time and valuable IT resources, accelerate complex IT projects, and simplify daily operations with the following:

- HP Virtual Connect Flex-10 technology, which offers up to 16 FlexNIC connections before adding additional Ethernet adapters
- Mission-critical virtualized UNIX®—HP-UX 11i v3, delivering the industry's most resilient UNIX platform ensuring your mission critical applications are always-on and secure without compromise
- HP-UX Virtual Partitions (vPars) provide up to 7 vPars per BL860c i2 server blade, dynamically adjust and share resources, and require very little overhead
- HP Integrity Virtual Machines (included with the Matrix OE)—provide the benefits of increased resource utilization and flexibility (shared processor and I/O devices), and rapid deployment
- HP-UX Containers* which enable workload consolidation on a single operating system
- HP Integrity Integrated Lights-Out 3 (iLO 3) remote management, which saves time and conserves valuable IT resources
- Insight Control Power Manager (ICPM)—enhances power utilization; Advanced Power capping—helps reclaim trapped power and cooling capacity; OS Power Regulator—helps conserve power without performance impact
- Infrastructure orchestration, which provisions and modifies complex infrastructures in minutes

* Formerly HP-UX Secure Resource Partitions (SRP)

Pay as you grow, only when you need to

Blade Link technology enables linear scalability from two to four to eight-socket server blades. With the Integrity server blades Upgrade Kits, you can easily upgrade from BL860c i2 to BL870c i2; or from BL870c i2 to BL890c i2—to meet your changing business demands. Upgrading Integrity blades has never been easier. Experience the true flexibility with mission-critical Converged Infrastructure.

Technical specifications

BL860c i2

BL860c i2 in c3000 Enclosure

BL860c i2 in c7000 Enclosure

Processor	Intel Itanium 9350 4c Proc Kit	Intel Itanium 9340 4c Proc Kit	Intel Itanium 9320 4c Proc Kit	Intel Itanium 9310 2c Proc Kit
Processors/cores per system	2/8	2/8	2/8	2/4
Module type	Quad-core processor	Quad-core processor	Quad-core processor	Dual-core processor
Clock speed with turbo	1.73 GHz Up to 1.86 GHz	1.6 GHz Up to 1.73 GHz	1.33 GHz Up to 1.46 GHz	1.6 GHz
QuickPath Interconnect	19.2 GB per second	19.2 GB per second	19.2 GB per second	19.2 GB per second
L1 cache	32 KB per core	32 KB per core	32 KB per core	32 KB per core
L2 cache (instruction)	512 KB per core	512 KB per core	512 KB per core	512 KB per core
L2 cache (data)	256 KB per core	256 KB per core	256 KB per core	256 KB per core
L3 cache	24 MB	20 MB	16 MB	10 MB
Memory minimum/maximum	Minimum: 8 GB (4 x 2 GB or 2 x 4 GB) Maximum: 384 GB (24 x 16 GB)			
Memory type	Registered PC3-10600 DDR3 1,333 MHz ECC DIMMs			
Memory protection	Error checking and correcting (ECC) on memory and caches; double-chip spare (with 4 GB DIMMs)			
Hard drive capacity	72 GB, 146 GB, 300 GB, 450 GB, 600 GB, and 900 GB SFF SAS drives available 200 GB and 400 GB SFF SAS SSD SLC drives available			
Internal hard drive bays	2 hot-plug SAS SFF 2.5-inch drives			
Maximum internal storage	1.8 TB			
Partitioning	HP-UX Virtual Partitions (vPars) HP Integrity Virtual Machines HP-UX Containers			
Removable media	HP External USB CD/DVD R/RW Drive			
I/O slots	3 mezzanine slots: 2 Type II and 1 Type I, PCIe x8 Gen2			
Network adapter	4 NIC ports via 2 HP NC532i dual-port Flex-10, 10GbE multifunction server adapters			
Storage controller	HP Smart Array P410i 3 Gb SAS controller			
Internal RAID	RAID 1, RAID 0, and HBA mode			
Interfaces	VGA and 2 USB ports for local human interface; 1 RS-232 serial port, and 10/100Base-T LAN for iLO 3 management			
Form factor	Full-height, single-wide HP BladeSystem c-Class form factor; 8 server blades in c7000 and 4 server blades in c3000			
Hot-plug fans	Up to 10 hot-plug, N+1 high availability (or greater, depending on the load) supplied with c-Class enclosure			
Operating systems supported	HP-UX 11i v3 (choice of Base OE, Virtual Server OE, High Availability OE, Data Center OE) **www.hp.com/go/hpux11i** OpenVMS 8.4 (choice of Mission Critical, Enterprise, or Foundation Operating Environment) **www.hp.com/go/openvms** Microsoft® Windows® Server 2008 R2 and Microsoft SQL Server 2008 R2 **www.hp.com/go/integrity/windows**			
Certifications	NEBS NRTL Certified to NEBS Level-3 Criteria (GR-63-CORE, GR-1089-CORE) ETSI Certified to EN 300 019, EN 300 386, and EN 300 753			
High availability—standard server features	N+1 up to N+N redundant power supplies (N < = 3) supplied through HP BladeSystem c-Class enclosure N+1 fans (or greater depending on the load), supplied through HP BladeSystem c-Class enclosure ECC on memory and caches Memory double-chip spare Automatic deconfiguration of memory and processors Service processor to monitor system status Redundant network paths Multiple Fibre Channel paths			
Matrix Operating Environment for HP-UX	Advanced infrastructure lifecycle management software that allows you to instantly adjust your IT infrastructure to dynamic business demands—provisioning and modifying a complex infrastructure in minutes: **www.hp.com/go/matrixoe/integrity**			

Environmental specifications—HP Integrity BL860c i2 server blade

Altitude	Operating: 10,000 ft. (3,000 m) maximum	Non-operating: 15,000 ft. (4,600 m) maximum
Temperature	Operating: 10° to 35°C (50° to 95°F)	Non-operating: –40° to 60°C (–40° to 140°F)
Relative humidity	Operating: 15% to 80%	Storage: 10% to 90%
Dimensions	Height: 14.42 in. (36.63 cm) Depth: 20.02 in. (50.85 cm) Width: 2.03 in. (5.16 cm)	
Weight	Maximum 26.5 lb (12.02 kg)	
Power requirements	Maximum 850 W	
BTU rating	Maximum 2,900 BTU/hour Typical .7 CPU utilization (with maximum memory, I/O, and internal drives) 2,324 BTU/hour	
Voltage tolerance range	Power supplied through the HP BladeSystem c-Class enclosure Single-phase model: 200 to 240 VAC 3-phase NA/JPN model: 200 to 208 VAC line to line; 3-phase Delta 3-phase international model: 346 VAC to 415 VAC line to line; 3-phase WYE	
Frequency tolerance range	50 to 60 Hz	
Regulatory model number	RSVLA-BC11	

HP Financial Services

Financing the mission-critical Converged Infrastructure
HP Financial Services provide you with the financial and asset management services you require to migrate to a mission-critical Converged Infrastructure. These services are designed to enable the migration to the new line of HP Integrity servers, while reducing TCO and accelerating your ROI. For more information on these services, visit www.hp.com/go/hpfinancialservices.

To learn how the HP Integrity BL860c i2 server blade can help your business move to a mission-critical Converged Infrastructure, visit: www.hp.com/go/integrityblades.

HP Services

HP Technology Services—consultants and support experts to solve your most complex infrastructure problems. We help keep your business running, no matter what. Boost availability and avoid downtime, trust our expertise to enhance your HP solution.

Recommended services

3-Year HP Support Plus 24: For a higher return on your server and storage technology, our 3-year combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support, and software updates.

HP Startup Integrity Blade Infrastructure Service: Provides for efficient and effective HP Integrity Blade infrastructure setup for the server infrastructure including all hardware and networking components.

Related services

3-Year HP Proactive 24: Provides improved stability, availability, and operational effectiveness with an integrated hardware and software support service that combines industry-leading reactive technical assistance with proactive account services, giving your IT manager support from a team of service specialists.

Trust the Services professionals at HP; for more information, visit **www.hp.com/services**.

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