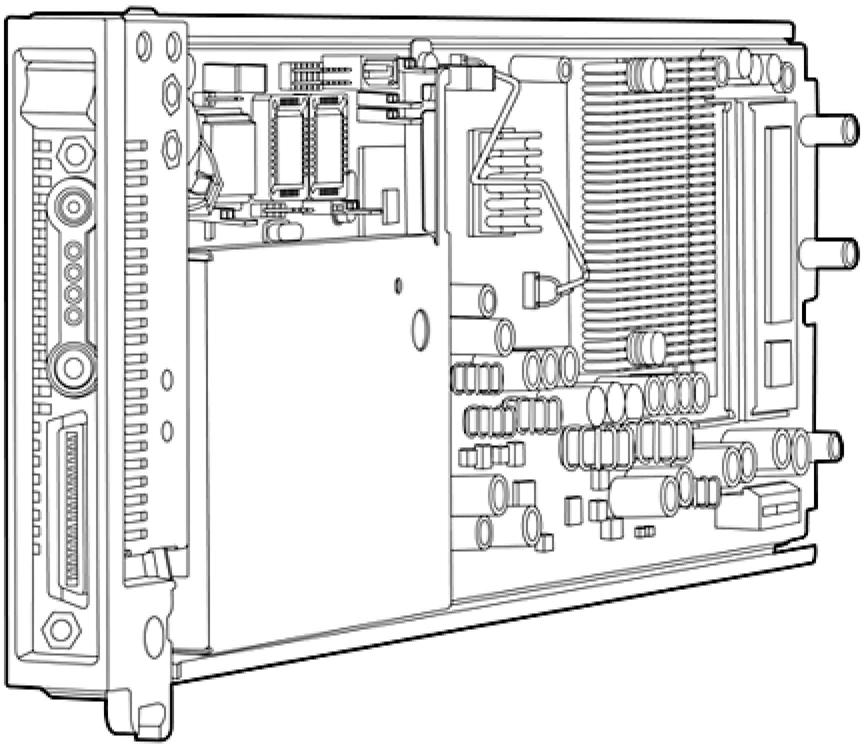
Overview

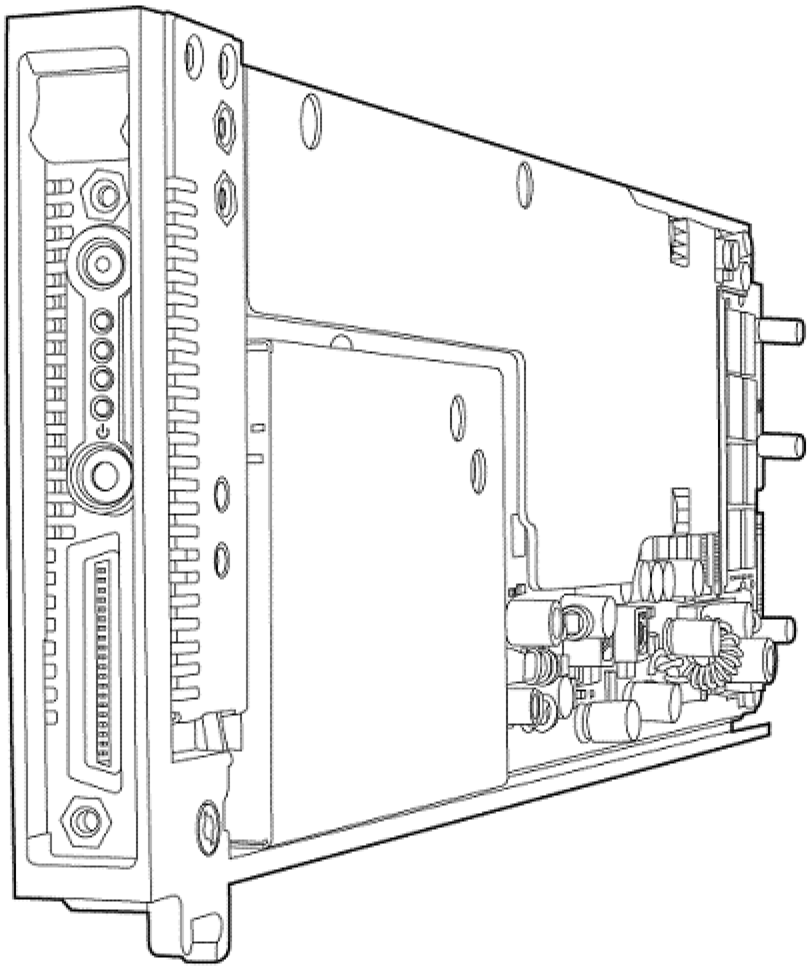


HP BladeSystem bc2200 Blade PC

At a Glance

- The HP BladeSystem bc2200 Blade PC combines desktop performance with the high rack density and a low 25W maximum power budget per blade.
- AMD Athlon™ 64 2200+ single core processor[1,2]
- 160 GB Serial SATA 7200 rpm hard drive[3]
- 2 GB DDR2 SDRAM PC2 6400 (800-MHz) expandable to 8 GB (2 SODIMM slots)[4]
- Two Broadcom 5906M 10/100 Integrated Network Controllers. NIC A is compliant with PXE (Pre-boot execution Environment)
- Integrated ATI graphics
- USB 2.0
- Restriction of Hazardous Substances[5] (RoHS) compliant
- Blade PCs are protected by HP Services, including a limited three-year parts warranty with Advanced Unit Exchange for express permanent replacement of a blade PC. Optional service uplifts available.

1 AMD's numbering is not a measurement of clock speed.
2 This system requires separately purchased 64-bit operating system and software products to take advantage of the 64-bit processing capabilities of the Athlon 64 2200+ processor. Given the wide range of software applications available, performance of a system including a 64-bit operating system will vary.
3 For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 8 GB (for XP) and up to 12 GB (for Vista) is reserved for system recovery software.
4 Maximum memory capacities assume 64-bit operating systems. Microsoft® Windows® XP (32-bit) supports 4 GB (with Microsoft 32-bit, the amount of usable memory will be dependent upon your system configuration. It may be less than 4 GB); 32-bit Linux can support up to 8 GB.
5 Products are designed to reduce the material used and to reduce or eliminate the use of hazardous materials to lower the environmental impact of HP products.



HP BladeSystem bc2800 Blade PC

At a Glance

- Offer even greater processing power with the high-performance HP BladeSystem bc2800 Blade PC.
- AMD Turion™ X2 TL-66 dual-core processor[1,2]
- 160 GB Serial SATA 7200 rpm hard drive[3]
- 2 GB DDR2 SDRAM PC2 6400 (800-MHz) expandable to 8 GB (2 SODIMM slots)[4]
- Two Broadcom 5906M 10/100 Integrated Network Controllers. NIC A is compliant with PXE (Pre-boot execution Environment)
- Integrated ATI graphics
- USB 2.0
- Restriction of Hazardous Substances[5] (RoHS) compliant
- Blade PCs are protected by HP Services, including a limited three-year parts warranty with Advanced Unit Exchange for express permanent replacement of a Blade PC. Optional service uplifts available.

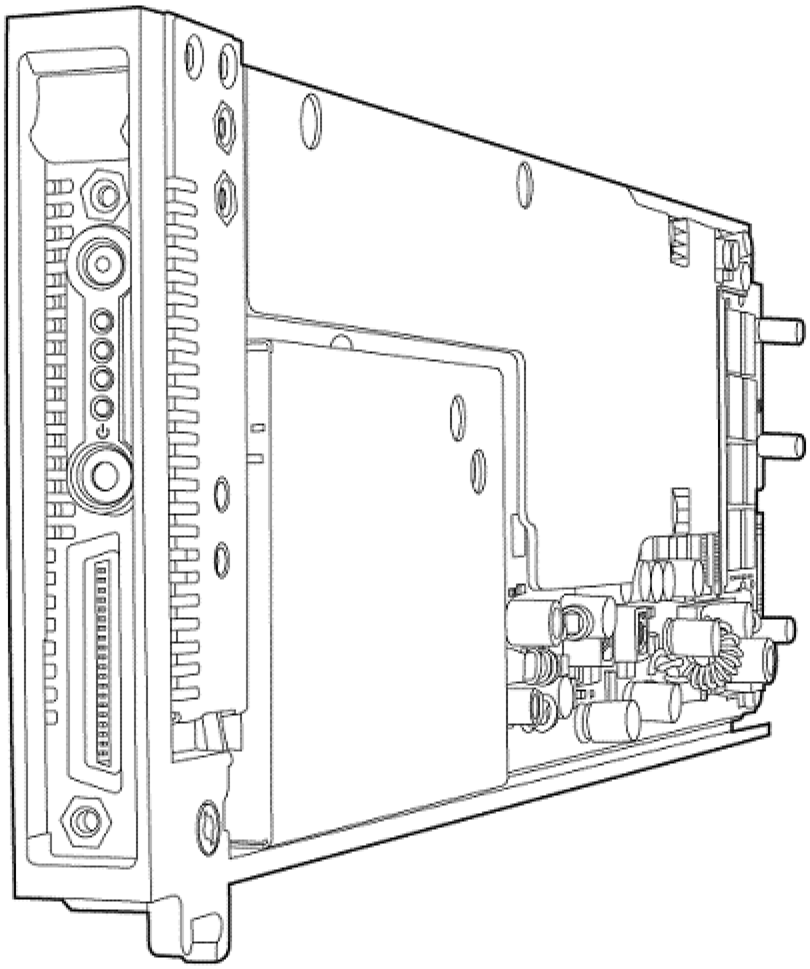
1 AMD's numbering is not a measurement of clock speed.
2 This system requires separately purchased 64-bit operating system and software products to take advantage of the 64-bit processing capabilities of the Athlon 64 2200+ processor. Given the wide range of software applications available, performance of a system including a 64-bit operating system will vary.
3 For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 8 GB (for XP) and up to 12 GB (for Vista) is reserved for system recovery software.
4 Maximum memory capacities assume 64-bit operating systems. Microsoft® Windows® XP (32-bit) supports 4 GB (with Microsoft 32-bit, the amount of usable memory will be dependent upon your system configuration. It may be less than 4 GB); 32-bit Linux can support up to 8 GB.
5 Products are designed to reduce the material used and to reduce or eliminate the use of hazardous materials to lower the environmental impact of HP products.

Configuration Steps

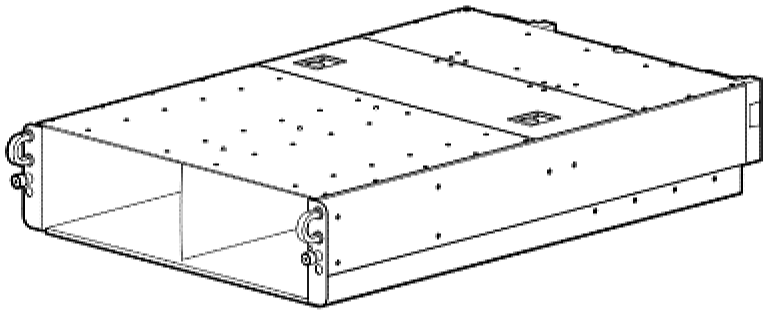
For a complete configuration of the HP BladeSystem bc2200 or bc2800 Blade PC system, you need:

1. HP BladeSystem bc2200 or bc2800 Blade PC (sold in a single-pack or 10-pack)

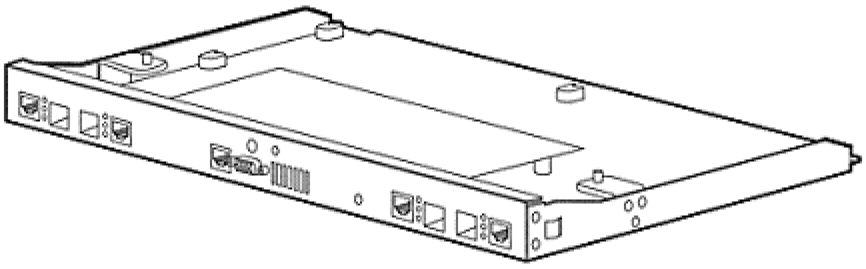
Overview



2. HP BladeSystem PC Blade Enclosure G2 (each can hold up to 20 blade PCs). The enclosure includes the HP BladeSystem PC Blade Switch (pre-installed) or the HP BladeSystem PC Blade RJ-45 Patch Panel (pre-installed) and comes bundled with 20 licenses for the ProLiant Essentials Rapid Deployment Pack.
NOTE: Customers with existing PC Blade Enclosures who want fully redundant power or to run the bc2800 will need to upgrade the enclosure with the G2 Enclosure Upgrade Kit (#AR485AA or AR486AA) to support the higher performance processors.

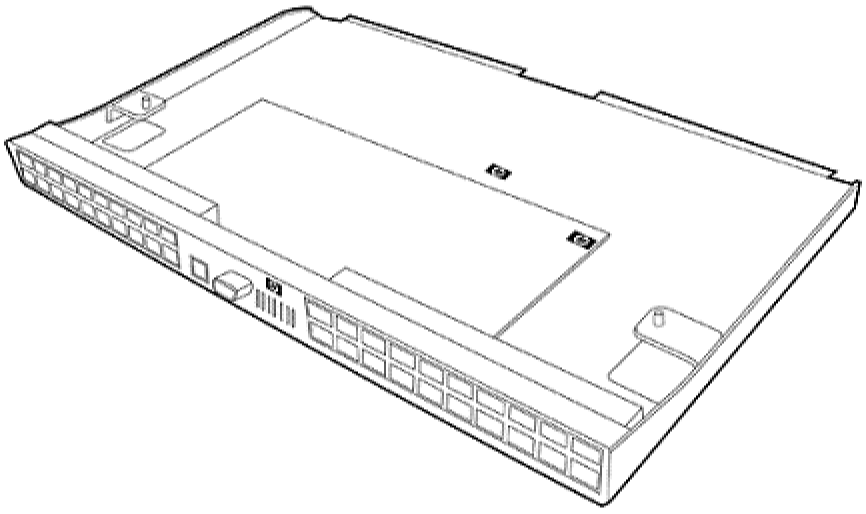


3. HP BladeSystem PC Blade Switch (for up to 40-to-1 network cable reduction) supports dual personality uplink ports for either fiber or copper Gigabit uplinks and is pre-installed in the HP BladeSystem PC Blade Enclosure kit.



4. HP BladeSystem PC RJ-45 Patch Panel functions as an Ethernet pass-through for a 1-to-1 mapping between each NIC on each Blade PC to one of the 40 RJ-45 ports on the back of the tray-mounted patch panel. It comes pre-installed in the HP BladeSystem PC Blade Enclosure G2 with Patch Panel kit.

Overview



HP BladeSystem bc2200 Blade PC

Processor		One AMD Athlon 64 2200+ 1.3 GHz Single Core
Cache Memory		512K L2
Chipset		ATI Radeon™ Xpress 1270 with integrated DirectX 9 compliant graphics **NOTE:** For more information regarding Advanced Micro Devices, please see the following URL: http://www.amd.com.
Memory	Standard	2 or 4 GB DDR2 SDRAM PC2 6400 (800-MHz) (2 x 2 GB or 2 x 4 GB SODIMM)
	Maximum	8 GB (2 SODIMM slots total)
Network Controller		Two Broadcom 5906M 10/100 Integrated Network Controllers; NIC A is compliant with PXE
Internal Storage		One 160-GB Serial ATA 7200 rpm hard drive
Industry Standard Compliance		ACPI 1.0b; ANSI C63.4 - 1992; C.I.S.P.R. Pub 22; CFR 47, Part 15; EN 55022; EN 55024; EN 60950: 2000; ICES-003; IEC 61000-4, Section 2-6, 8, 11; IEC 801, Part 2; IPC-A-610; PC2 5300; PCI 2.3; PXE 2.1; SPD 1.2B; UL 94; UL 796; USB 2.0. RoHS/WEEE compliant
Manageability		HP Session Allocation Manager (SAM) (sold separately) HP Systems Insight Manager (SIM) HP Rapid Deployment Pack (RDP) HP BladeSystem PC Blade Enclosure Integrated Administrator (IA) ROM Based Setup Utility (RBSU) Automatic System Recovery (ASR) System Software Manager (SSM) DOS-based replicated setup utility (REPSET) Unit ID LED for blade PCs and enclosure
High Availability		HP Session Allocation Manager (SAM) with auto roll over feature (sold separately) Robust boot block recovery ROM
Security		Administrator's password NX Security Support
Operating System	**Preinstalled**	Windows Vista® Business 32-bit SP1 FreeDOS
	Supported	Windows Vista® Enterprise 32-bit Microsoft® Windows® XP Professional SP3 Windows Vista® Business 64-bit Windows Vista® Enterprise 64-bit
	Certified	Red Hat Enterprise Linux version RHEL5.1 for 32-bit and 64-bit Novell SuSE Linux Enterprise Server 10 SP2 for 32-bit and 64-bit

Certain Windows Vista product features require advanced or additional hardware. See www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit www.windowsvista.com/upgradeadvisor.

HP BladeSystem bc2800 Blade PC

Processor	One AMD Turion X2 TL-66 2.3 GHz Dual Core
Cache Memory	512 K L2 per core (total 1 MB L2)

Standard Features

Chipset	ATI Radeon™ Xpress 1270 with integrated DirectX 9 compliant graphics **NOTE:** For more information regarding Advanced Micro Devices, please see the following URL: http://www.amd.com.	
Memory	Standard	2 or 4 GB DDR2 SDRAM PC2 6400 (800-MHz) (2 x 2 GB or 2 x 4 GB SODIMM)
	Maximum	8 GB (2 SODIMM slots total)
Network Controller	Two Broadcom 5906M 10/100 Integrated Network Controllers; NIC A is compliant with PXE	
Internal Storage	One 160-GB Serial ATA 7200 rpm hard drive	
Industry Standard Compliance	ACPI 1.0b; ANSI C63.4 - 1992; C.I.S.P.R. Pub 22; CFR 47, Part 15; EN 55022; EN 55024; EN 60950: 2000; ICES-003; IEC 61000-4, Section 2-6, 8, 11; IEC 801, Part 2; IPC-A-610; PC2 5300; PCI 2.3; PXE 2.1; SPD 1.2B; UL 94; UL 796; USB 2.0. RoHS/WEEE compliant	
Manageability	HP Session Allocation Manager (SAM) (sold separately) HP Systems Insight Manager (SIM) HP Rapid Deployment Pack (RDP) HP BladeSystem PC Blade Enclosure Integrated Administrator (IA) ROM Based Setup Utility (RBSU) Automatic System Recovery (ASR) System Software Manager (SSM) DOS-based replicated setup utility (REPSET) Unit ID LED for blade PCs and enclosure	
High Availability	HP Session Allocation Manager (SAM) with auto roll over feature (sold separately) Robust boot block recovery ROM	
Security	Administrator's password NX Security Support	
Operating System	**Preinstalled**	Windows Vista® Business 32-bit SP1 FreeDOS
	Supported	Windows Vista® Enterprise 32-bit Microsoft® Windows® XP Professional SP3 Windows Vista® Business 64-bit Windows Vista® Enterprise 64-bit
	Certified	Red Hat Enterprise Linux version RHEL5.1 for 32-bit and 64-bit Novell SuSE Linux Enterprise Server 10 SP2 for 32-bit and 64-bit

Certain Windows Vista product features require advanced or additional hardware. See www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit www.windowsvista.com/upgradeadvisor.

bc2200 Blade PC SKUs

bc2200 Blade PC	**Processor**	AMD Athlon 64 2200+
AR152AW (1 pack)	**Cache Memory**	512 K L2
	Memory	2 GB (2x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC	**Processor**	AMD Athlon 64 2200+
AR153AW (1 pack)	**Cache Memory**	512 KB L2
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC	**Processor**	AMD Athlon 64 2200+
AR154AW (10 pack)	**Cache Memory**	512 KB L2
	Memory	2 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC	**Processor**	AMD Athlon 64 2200+
AR155AW (10 pack)	**Cache Memory**	512 KB L2
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC	**Processor**	AMD Athlon 64 2200+
AR132AW (1 pack)	**Cache Memory**	512 KB L2
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC	**Processor**	AMD Athlon 64 2200+
AR133AW (1 pack)	**Cache Memory**	512 KB L2
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

Models

bc2200 Blade PC *AR134AW (10 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC *AR135AW (10 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

bc2800 Blade PC SKUs

bc2800 Blade PC *AR156AW (1 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR157AW (1 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR158AW (10 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR159AW (10 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

Models

bc2800 Blade PC *AR136AW (1 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR137AW (1 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR138AW (10 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR139AW (10 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

Factory Express Models (North America Only)

HP Factory Express offers configuration, customization, integration and deployment services for HP workstations, 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 on your specific server model please contact your sales representative or go to http://www.hp.com/go/factory-express.

bc2200 Blade PC SKUs

bc2200 Blade PC *AR152AZ (1 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 K L2
	Memory	2 GB (2x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC *AR153AZ (1 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC *AR154AW (10 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	2 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC *AR155AZ (10 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC *AR132AZ (1 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2200 Blade PC *AR133AZ (1 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

Factory Express Models (North America Only)

bc2200 Blade PC *AR134AZ (10 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

bc2200 Blade PC *AR135AZ (10 pack)*	**Processor**	AMD Athlon 64 2200+
	Cache Memory	512 KB L2
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

bc2800 Blade PC SKUs

bc2800 Blade PC *AR156AZ (1 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

bc2800 Blade PC *AR157AZ (1 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

bc2800 Blade PC *AR158AZ (10 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

bc2800 Blade PC *AR159AZ (10 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	Windows Vista® Business 32-bit SP1
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

Factory Express Models (North America Only)

bc2800 Blade PC *AR136AZ (1 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR137AZ (1 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR138AZ (10 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	2 GB (2 x 1 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure
bc2800 Blade PC *AR139AZ (10 pack)*	**Processor**	AMD Turion™ X2 TL-66 dual-core
	Cache Memory	512 K L2 per core (1MB L2)
	Memory	4 GB (2 x 2 GB DIMMs) DDR2 SDRAM PC6400 (800-MHz)
	Network Controller	Two Broadcom 5906M 10/100 Integrated NICs
	Hard Drive	160-GB Serial ATA 7200 rpm hard drive
	Operating System	FreeDOS
	Form Factor	Plugs vertically into HP BladeSystem PC Blade Enclosure

HP Remote Graphics Software (sold separately)

HP Remote Graphics Software (RGS) is a unique high performance network display technology, developed by HP, which uses a high compression rate and high-speed encoding/decoding process to deliver a true desktop experience through a remote connection.

Following its success with the HP Blade Workstation Solution, HP RGS is now available for the HP bc2800 Blade PC as an alternative to the Microsoft Remote Desktop Protocol.

HP RGS can ber purchased separately. For more information, please visit www.hp.com/go/rgs.

HP BladeSystem PC Blade Enclosure (sold separately)

Rack Capability

Includes the either the HP BladeSystem PC Blade Switch or the HP BladeSystem RJ-45 Patch Panel pre-installed within the enclosure. Mounts in HP 10000 and 9000 series, HP System-E, as well as third-party and Telco racks. Rack mounting hardware for HP and third-party racks ships standard with each blade enclosure. Telco rack-mounting hardware is a separately available option kit.

Rack Airflow Requirements

The HP 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with blade PCs using the latest processors.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors: If your 42U rack includes closing front and rear doors, you must allow 5,350 square cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches).

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.
NOTE: Please consult the Setup & Installation Guide for the blade PC for additional details.

Enclosure Includes

- Pre-installed HP BladeSystem PC Blade Switch or Pre-installed HP BladeSystem PC Blade RJ-45 Patch Panel
- 3U high rack-mountable chassis with 20 blade PC bays
- Rack mounting hardware for HP, Compaq-branded, and third-party racks
- Rear bay for HP BladeSytem PC Blade Switch or HP BladeSystem PC Blade RJ-45 Patch Panel for network cable management
- ProLiant Essentials Foundation Pack licenses for 20 blade PCs (see features following)
- Four hot-plug fans
- Dual hot-plug power supplies (600 watts each), power cords

Diagnostic Adapter Interfaces

NOTE: Enclosure/Blade PC Diagnostic adapter sold separately

Blade PC LEDs (6)
PS/2 Mouse
PS/2 Keyboard
VGA monitor
Serial RS-232 port
USB 2.0

ProLiant Essentials Foundation Pack Software	**HP Systems Insight Manager**	Systems Insight Manager helps maximize system uptime and performance and reduces the cost of maintaining the IT infrastructure by providing proactive notification of problems before those problems result in costly downtime and reduced productivity. Insight Manager is easy to set up and provides rapid access to inventory information. http://www.hp.com/go/hpsim/.
	ProLiant Essentials Rapid Deployment Pack	An automated solution for deployment and provisioning, enabling companies to quickly and easily adapt to changing business demands. **NOTE:** For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.
	Interconnect Switch Management System and Utilities	Full featured industry standard command line interface, SNMP and RMON, and TFTP support.

HP BladeSystem PC Blade Switch Features (Pre-installed with HP BladeSystem PC Blade Enclosure G2)

Wire-Speed Performance	Delivers impressive switching capacities of up to 12.8 Gbps and can be deployed in a wide number of different network deployment scenarios, including Fast Ethernet, edge client connectivity, and wiring closet deployments. Because these switches adhere stringently to industry standards, they can be deployed with other industry-standard compliant networking devices.
Easy, Powerful Management	Supports a number of industry-standard management interfaces such as web-based management, Command Line Interface (CLI), and Simple Network Management Protocol (SNMP v1/v2c/v3). For large network environments, HP's SIM™ provides management control to more easily configure large numbers of deployed switches. HP Systems Insight Manager merges the best features of Insight Manager, Toptools, and Servicecontrol Manager to deliver unified management of HP hardware products
Robust Security	Advanced security features help protect the network from accidental or malicious interference. MAC-based port security and MAC-based Access Control Lists (ACLs) are designed to prevent unauthorized MAC addresses from accessing the network SNMPv3, SSL and SSH encryption offer the added security of encrypting switch management traffic. RADIUS and TACACS+ support enables centralized, remote authentication of administrative access to the switch. Management access filtering provides a mechanism to limit network hosts that have access to the switches using a wide array of options, such as MAC address, IP address, and VLAN.

HP BladeSystem PC Blade RJ-45 Patch Panel Features (Pre-installed with HP BladeSystem PC Blade Enclosure G2)

- Plugs into HP BladeSystem PC Blade Enclosures
- Used to pass NIC signals from Blade PCs in PC Blade enclosure out as RJ-45 connections
- 40 RJ-45 connectors on the back of each BladeSystem PC Blade RJ-45 Patch Panel (supporting 20 blade PCs – each with 2 NICs – per PC Blade)

HP Integrated Administrator Features

- One RS-232 console port and one RJ-45 10/100BaseT Fast Ethernet port
- CLI or Web Based GUI
- Remotely power on/off/reboot blade PCs
- Remotely toggle on/off unit identification (UID) LEDs of blade PCs and enclosure
- Monitors and controls the enclosure fans, temperature sensors, power supplies, interconnect switch and blade PC status
- Connect to each blade PC's serial text console for enabling full control over blade PC's Power-On Self Test (POST) and boot process, including the ROM-Based Setup Utility (RBSU).
- User administration for up to 25 users. Blade PC bay privileges can be set on a per-user basis
- Virtual NMI button generates non-maskable interrupt for crash debug and analysis
- More than 100 scriptable commands enable automated management
- Selective enabling of all services, such as Telnet, Alertmail, IPSecurity, NTP, SNMP, SSH, User, and WEB
- Logging of operating system console, blade PC, and enclosure hardware events, user actions and invalid login attempts
- Administrator notification that a blade, power supply, or interconnect is warm
- Enclosure controller blade shutdown (graceful Windows shutdown) if blade overheats
- Emergency blade shutdown in the event of a critical temperature fault

Options/Memory

Service and Support

HP Services provides a wide range of service offerings, including a three-year, limited parts warranty on the HP BladeSystem bc2200/bc2800 Blade PC and Advanced Unit Exchange Service.

CAUTION: Do not ship blade PCs and enclosure while inside the rack without first installing the Enclosure Shipping Bracket (part number PH555A). Failure to use the shipping bracket during transit violates the HP warranty and may result in damage to the blade PC and/or enclosure.

The HP BladeSystem PC Blade Enclosure G2 has a three-year, limited warranty on parts, labor and on-site support.

- A full range of HP Care Pack packaged hardware and software services:
- Range of multi-year warranty extension options for all BladeSystem hardware components
- Range of incident-based software service and support options
- System management and performance services
- Availability and recovery services

NOTE: For more information, customer/resellers can contact http://www.hp.com/services/carepack.
NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center at 1-800-567-1616 for details.

HP BladeSystem PC Blade Enclosure G2 and Switch	HP BladeSystem PC Blade Enclosure G2 (includes 20 licenses for ProLiant Essentials Rapid Deployment Pack) Includes the HP BladeSystem PC Blade Switch pre-installed (and Integrated Administrator module). **NOTE:** Switch tray integrates into Blade PC Enclosure providing 40:1 reduction in network cables for each enclosure.	*AR140AZ#ABA (Factopy Express/NA only)*
HP BladeSystem PC Blade Enclosure G2 and RJ-45 Patch Panel	HP BladeSystem PC Blade Enclosure G2 (includes 20 licenses for ProLiant Essentials Rapid Deployment Pack) Includes the HP BladeSystem PC Blade RJ-45 Patch Panel pre-installed (and Integrated Administrator module). **NOTE:** Patch Panel tray provides a 1-to-1 direct RJ-45 connection to both NICs on each Blade PC in the enclosure.	*AR141AZ#ABA (Factopy Express/NA only)*
HP BladeSystem PC Blade Enclosure G2 and Switch	HP BladeSystem PC Blade Enclosure G2 (includes 20 licenses for ProLiant Essentials Rapid Deployment Pack) Includes the HP BladeSystem PC Blade Switch pre-installed (and Integrated Administrator module). **NOTE:** Switch tray integrates into Blade PC Enclosure providing 40:1 reduction in network cables for each enclosure.	*AR140AW*
HP BladeSystem PC Blade Enclosure G2 and RJ-45 Patch Panel	HP BladeSystem PC Blade Enclosure G2 (includes 20 licenses for ProLiant Essentials Rapid Deployment Pack) Includes the HP BladeSystem PC Blade RJ-45 Patch Panel pre-installed (and Integrated Administrator module). **NOTE:** Patch Panel tray provides a 1-to-1 direct RJ-45 connection to both NICs on each Blade PC in the enclosure.	*AR141AW*
G2 Enclosure Upgrade Kit	To support the higher performance bc2800 in the existing HP BladeSystem PC Blade Enclosures, this field installable kit contains 2 new High Efficiency power supplies G2 Mid-plane, and installation instructions	*AR485AA (patch panel)* *AR486AA (switch)*
Memory Upgrades	HP 2 GB (1 x 2 GB DDR2) SODIMM (bc2x00 series option only) Each kit contains one 2GB SODIMM	*GV576AA*
	HP 4 GB (1 x 4 GB DDR2) SODIMM (bc2x00 series option only) Each kit contains one 4GB SODIMM	*AT037AA*
	NOTE: The bc2x00standard configuration contains either 2GB memory (2 x 1 GB SODIMM), or 4 GB memory (2 x 2 GB SODIMM)	
Blade PC Diagnostic Adapter Kit	Blade PC Diagnostic Adapter Kit (2 diagnostic adapters with USB 2.0 support)	GJ676AA
Fiber GBIC	HP ProCurve SX Mini-GBIC	J4858C
	HP ProCurve LX Mini-GBIC	J4859C

Options/Memory

Enclosure Shipping Brackets	Enclosure Shipping Bracket Kit (2 per kit for 1 enclosure) **NOTE:** When shipping an enclosure in a rack, shipping brackets must be installed to prevent damage during transit.	PH555A
Enclosure Blank Bezels	HP BladeSystem PC Blade Enclosure bay blanks. Used to block unpopulated enclosure bays to ensure proper air flow. Contains three "5-bay blanks" pieces and four "1-bay bank" pieces.	AG137AA
Microsoft Remote Desktop Licenses	Windows Vista® Remote Desktop License (RDL)	GQ183A
Software	HP Session Allocation Manager (SAM) License – 3yr	GR918AA
	HP Remote Graphics Software (RGS)	GN038AA
	HP Remote Graphics Software (RGS) Software Assurance – 3yr	GN039AA

HP BladeSystem bc2200 Blade PC

Standard Memory

A choice of SKUs with:

- 2 GB 800-MHz DDR SDRAM (2 x 1 GB SODIMM) installed
- 4 GB 800-MHz DDR SDRAM (2 x 2 GB SODIMM) installed

Standard Memory Plus Optional Memory

Up to 8 GB of DDR SDRAM is available with the installation of optional DDR SDRAM memory expansion kits (sold separately).

Memory		**Slot**	
		1	**2**
Standard	2 GB	1 GB	1 GB
Maximum	8 GB	4 GB	4 GB

HP BladeSystem bc2800 Blade PC

Standard Memory

A choice of SKUs with:

- 2 GB 800-MHz DDR SDRAM (2 x 1 GB SODIMM) installed
- 4 GB 800-MHz DDR SDRAM (2 x 2 GB SODIMM) installed

Standard Memory Plus Optional Memory

Up to 8 GB of DDR SDRAM is available with the installation of optional DDR SDRAM memory expansion kits (sold separately).

Memory		**Slot**	
		1	**2**
Standard	2 GB	1 GB	1 GB
Maximum	8 GB	4 GB	4 GB

Technical Specifications

HP BladeSystem bc2200 or bc2800 Blade PC	**Dimensions**	**Height**	4.7 in (11.94 cm)
		Width	0.8 in (2.03 cm)
		Depth	15.5 in (39.37 cm)
	Weight	**Maximum**	2.2 lb (1.0 kg)
	Temperature[1]	**Operating**	50° to 95° F (10° to 35° C)
		Non-operating shipping	–40° to 140° F (–40° to 60° C)
		Non-operating storage	–4° to 140° F (–20° to 60° C)
	Relative humidity[1] (non-condensing)	**Operating**	10% to 90%
		Non-operating shipping	10% to 90%
		Non-operating storage	10% to 95%
	LEDs (Top to bottom)	**Unit identification**	Off = off
			Steady blue = blade identified
			Blinking blue = being accessed remotely
		Health	Off = off
			Green = health good
			Amber = degraded or power up prohibited by the Integrated Administrator
			Blinking or steady red = critical
		NIC A	Off = off
			Green = linked to network
			Blinking green = Activity on network
		NIC B	Off = off
			Green = linked to network
			Blinking green = activity on network
		Drive activity	Off = No drive activity
			Blinking green = drive activity
		Power	Off = no AC power to blade or enclosure
			Amber = Enclosure on and in good health
			Green = blade power on

[1] Operating temperature has an altitude derating of 34° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Storage maximum humidity of 95% is based on a maximum temperature of 112° F (45° C). Minimum pressure for storage is 70 KPa.

160-GB SATA Hard Drive	**Capacity**	160 GB	
	Interface	Serial ATA	
	Transfer rate synchronous (maximum)	3.0 Gbps	
	Seek time (typical reads, including settling)	**Single track**	1.1 ms
		Average	12 ms
		Maximum	22 ms
	Rotational speed	7200 rpm	

Broadcom 5906M 10/100 Integrated NIC	**Network interface**	10Base-T/100Base-TX	
	Compatibility	IEEE 802.3/802.3u compliant	
	Data transfer method	32-bit bus-master PCI	
	Features	NIC A WOL enabled and PXE compliant	
	Network transfer rate	10Base-T (half-duplex)	10 Mb/s
		10Base-T (full-duplex)	20 Mb/s
		100Base-TX (half-duplex)	100 Mb/s
		100Base-TX (full-duplex)	200 Mb/s
	Connector	Mates into enclosure center wall assembly	

Technical Specifications

Enclosure	**Dimensions**	**Height** (3U)	5.25 in (13.34 cm)
		Width	19 in (48.26 cm)
		Depth	27 in (68.58 cm)
	Weight (with interconnect tray)	**No blade PCs**	59 lb (26.76 kg)
		20 blade PCs	103 lb (46.7 kg)
	Rated input (autosensing)	**Voltage**	Nominal 100 to 120 VAC or 200 to 240 VAC Minimum: 90 VAC / Maximum: 264 VAC
		Frequency	47 to 63 Hz
		Current (per power supply cord)	9.4 A at 90 VAC 9.9 A at 110-120 VAC 7.8 A at 200-240 VAC
	Temperature[1]	**Operating**	50° to 95° F (10° to 35° C)
		Shipping, 72 hours	-40° to 140° F (-40° to 60° C)
	Relative humidity (non-condensing)	**Operating**	10% to 90%
		Non-operating	10% to 95%
	Management	Enclosure self recovery Health logs Redundant power supply utility Automatic System Recovery (ASR)	
	High availability	Redundant hot-plug power supplies Redundant hot-plug fans	

[1] Operating temperature has an altitude derating of 34° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Storage maximum humidity of 95% is based on a maximum temperature of 112° F (45° C). Minimum pressure for storage is 70 KPa.

For more information on CCI power and thermal facility site planning:
http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls

Enclosure Hot-Plug Power Supply	**Dimensions**	**Height**	3.579 in (9.14 cm)
		Depth	10.24 in (28.45 cm)
		Width	4.47 in (11.43 cm)
	Weight	6.5 lb (2.95 kg)	
	Rated input	**Voltage** (autosensing)	Nominal: 100 to 120 VAC or 200 to 240 VAC Minimum: 90 VAC Maximum: 264 VAC
		Frequency	47 to 63 Hz
		Current	9.4 A at 90 VAC 9.9 A at 110-120 VAC 7.8 A at 200-240 VAC
	Rated output	**Voltage/current**	12V, 66.7A @ 100V input
			12V, 75A @ 110-120V input
			12V, 100A @ 200-240V input
			12Vsb, 2.5A
		Power RMS	*At 100V input, 800W* *At 110-120V input, 900W* *At 200-240V input, 1200W*
	Temperature[1]	**Operating**	50° to 55° F (10° to 35° C)
		Non-operating, shipping	-40° to 85° F (-40° to 60° C)
	Relative humidity[1] (non-condensing)	**Operating**	10% to 90%
		Non-operating	10% to 95%
	Dieletric voltage withstand	**Input to output**	2000 VAC minimum
		Input to ground	2000 VAC minimum

[1] Operating temperature has an altitude derating of 34° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Storage maximum humidity of 95% is based on a maximum temperature of 112° F (45° C). Minimum pressure for storage is 70 KPa.

HP BladeSystem PC Blade Switch	**Port configuration**	● 42 10/100BASE-T ports ● 4 RJ-45 10/100/1000BASE-T ports ● 4 SFP slots for fiber media support ● 802.3u and 802.3ab Auto-negotiation for speed, duplex mode and 802.3x flow control; Auto MDI/MDIX on uplink ports ● Port mirroring; Broadcast storm control; Cable Tester
	Performance	● Switching capacity 12.8 Gbps ● Forwarding rate 9.5 Mpps ● Up to 8,000 MAC addresses
	Management	● Web-based management interface ● Industry-standard CLI accessible via Telnet or Local Serial Port ● SNMPv1, SNMPv2c and SNMPv3 supported; four RMON groups supported (history, statistics, alarms and events) ● TFTP transfers of firmware and configuration files ● Dual firmware images on-board ● Multiple configuration file upload/download supported ● Statistics for error monitoring and performance optimization including port summary tables ● DHCP IP address management supported ● Secure Telnet (SSH)
	Quality of service	● Layer 2 trusted mode (IEEE 802.1p tagging); Layer 3 trusted mode (DSCP); 4 priority queues per port; Adjustable Weighted-Round-Robin (WRR) and strict queue scheduling
	Security	● IEEE 802.1x based edge authentication ● Switch access password protection ● User-definable settings for enabling or disabling Web, SSH, Telnet, SSL management access ● Port-based MAC address alert and lock-down ● IP address filtering for management access via Telnet, HTTP, HTTPS/SSL, SSH and SNMP ● RADIUS and TACACS+ remote authentication for switch management access ● SSLv3 and SSHv2 encryption for switch management traffic; Management access filtering via management access profile
	VLAN	● VLAN support for tagging and port-based as per IEEE 802.1Q; Up to 256 simultaneous VLANs supported; addressable VLAN ID range from 1 - 4093 ● Dynamic VLAN with GVRP support; Private VLANs
	Switching features	● Link aggregation with up to four aggregated links and up to four member ports per aggregated link (IEEE 802.3ad); LACP support (IEEE 802.3ad)
	Availability	● Spanning Tree (IEEE 802.1D) and Rapid Spanning Tree (IEEE 802.1w) with Fast Link Support ● Multiple Spanning Trees (IEEE 802.1s) ● Static IP multicast; IGMP snooping for IP multicast support
	Layer 2 multicast	● Static IP multicast; IGMP snooping for IP multicast support
HP BladeSystem PC Blade RJ-45 Patch Panel	**Port configuration**	● 20 RJ-45 connectors for Blade PC NIC A (PXE-enabled) ● 20 RJ-45 connectors for Blade PC NIC B (not PXE-enabled) ● 1 Integrated Administrator management connector (10/100 Ethernet) ● 1 Integrated Administrator console connector (RS-232 serial)

© 2009 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. 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. Microsoft, Windows, and Windows Vista are trademarks of the Microsoft group of companies. AMD, Athlon, Turion, ATI, and Radeon are trademark of Advanced Micro Devices, Inc.