HP BladeSystem c-Class enclosures

Tackle your infrastructure's cost, time, and energy challenges

HP BladeSystem c3000 Platinum Enclosure

HP BladeSystem c7000 Platinum Enclosure

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Choosing wisely

Choosing an HP BladeSystem can transform your infrastructure into something simpler and more useful for your business. The HP BladeSystem enclosure is the secret behind that transformation. By consolidating everything from the start, the HP BladeSystem enclosure tackles four big problems:

- Cost—Existing infrastructures are more expensive to purchase, run, and maintain. HP BladeSystem reduces purchase and operating costs.

- Time—HP BladeSystem is faster to deploy and can rapidly adapt to infrastructure changes with HP Virtual Connect technology.

- Change—Networking and storage connections are simplified, so your infrastructure can adapt to your changing business needs.

- Energy—Reclaim trapped power and reduce energy consumption by up to 38 percent, compared to traditional infrastructure.[1]

Today, HP offers two versatile enclosures to match the unique needs of large to small IT environments:

- HP BladeSystem c7000 Platinum Enclosure—Ideal for larger data centers with more dynamic environments; holds up to 16 server and storage blades.

- HP BladeSystem c3000 Platinum Enclosure—Uniquely designed for small spaces; no special power and cooling requirements; supports up to eight server and storage blades.

Each enclosure repackages the moving parts of your infrastructure cables, power supplies and fans, networking, and redundancy. The economical HP BladeSystem includes useful features that save you time, hassles, and energy, while making change quick and easy. The result— greater convenience during setup, maintenance, and daily operations.

Each HP BladeSystem enclosure is easy to upgrade and customize. Inside, you can mix and match almost any combination of HP ProLiant server blades, HP Integrity server blades, and HP storage blades to run your choice of thousands of applications. You can also connect to the same networks, but with up to 94 percent fewer cables.[2] You can share and swap the same blades and network options between other HP BladeSystem enclosures, and manage the entire system with the same tools.

[1] "Business Value of Blades," Jed Scaramella, Randy Perry, IDC, April 2012.
[2] Comparing all cable requirements of 16 c-Class server blades vs. 16 standard 1U servers, August 2012.

Pick the right enclosure for your organization's needs
Choose the HP BladeSystem c3000 Platinum Enclosure for small offices or remote sites that have no IT staff. This enclosure is the right choice if you:

- Need between two and eight servers or storage blades per enclosure, or you purchase up to eight servers gradually over time

- Have limited rack power and cooling capacity

- Require standard power connections, such as connecting to an uninterruptible power supply (UPS) or wall outlets—100 VAC to 120 VAC

Select the BladeSystem c7000 Platinum Enclosure for larger and dynamic data center environments. This enclosure is the smart choice if you:

- Need more than eight servers or storage blades per enclosure

- Have an environment that is growing rapidly, with frequent server purchases

- Are connecting to redundant rack-level power distribution units (PDUs) or a data center UPS

- Require the highest levels of availability and redundancy

- Want to attach the servers to multiple rack-based shared storage arrays

Why choose HP?

By combining advanced technologies in one comprehensive system, HP made BladeSystem not only easy to operate, but also very useful—regardless of whether you choose the BladeSystem c3000 or c7000 Platinum Enclosure.

- Intelligent infrastructure support—Power Discovery Services allow HP BladeSystem Enclosures to communicate information to HP Intelligent PDUs (iPDU), which automatically track enclosure power connections to the specific iPDU outlet to ensure redundancy and prevent downtime. Location Discovery Services allow the c7000 Platinum Enclosure to automatically record its exact location within HP Intelligent Series Racks, eliminating time-consuming manual asset tracking.

- HP Thermal Logic technologies—Combine energy-reduction technologies—such as the 80 PLUS certified and 94-percent efficient[3] HP 2650 W and 2400 W Platinum Power Supplies—with pinpoint measurement and control through Dynamic Power Capping, to save energy and reclaim trapped capacity without sacrificing performance.

- Virtual Connect architecture—Wire once, and then add, replace, or recover blades on the fly without impacting networks and storage or creating extra steps.

- HP OneView—Available with the c7000 Enclosure, the HP OneView architecture combines server, storage, and networking with control of data center power and cooling into a single, integrated management platform. Architected to deliver lifecycle management for the complete converged infrastructure, HP OneView uses advanced automation to facilitate collaboration, remove friction, collapse cycle times, eliminate error-prone work, and accelerate time-to-value. With OneView, you'll work smarter—with greater visibility and control—and fully capitalize on the benefits of a converged infrastructure.

[3] Certified by the 80 PLUS program, see 80plus.org for more information.

- Dynamic Power Capping—Maintain an enclosure's power consumption at or below a cap value to prevent increases in compute demand from causing a surge in power that could trip circuit breakers.

- Power Regulator—Dynamically change each server's power consumption to match the required processing horsepower, thus automatically reducing power consumption during periods of low utilization.

- HP NonStop midplane—No single point of failure, to keep your business up and running, no matter what.

- Onboard Administrator—The intelligence of the c-Class infrastructure. Together with the enclosure display (HP Insight Display), both local and remote administration of HP BladeSystem Enclosures is available. Wizards get you up and running fast; they are paired with useful tools to simplify daily tasks, warn of potential issues, and assist you with repairs.

No-compromise capabilities

Share components in one HP BladeSystem enclosure with others—making the enclosures fast and easy to create, customize, and grow.

- Run the same business applications—Industry standards support your operating systems and thousands of application choices.

- Trust the same server and storage blades—You can mix and match ProLiant server blades, Integrity server blades, storage blades, and other products in a single enclosure.

- Connect to the same networks—Use the latest Ethernet, Fibre Channel, InfiniBand, FCoE, iSCSI, and SAS standards and trusted brands.

- Get more blades with more capability—You use less infrastructure to receive more capabilities.

Technical specifications

	HP BladeSystem c3000 Platinum Enclosure	HP BladeSystem c7000 Platinum Enclosure
Device bays	Up to four full height Up to eight half height Mixed configuration supported	Up to eight full height Up to 16 half height Mixed configuration supported
Interconnect bays	Four I/O fabric bays	Eight I/O fabric bays
Cooling	Centralized HP Active Cool 100 hot-plug redundant fans	Centralized HP Active Cool 200 hot-plug redundant fans
Management	Onboard Administrator – LAN and serial access with local KVM connection option Redundant Onboard Administrator option HP Insight Control option	Onboard Administrator – LAN and serial access plus a local KVM connection Redundant Onboard Administrator option HP Insight Control option HP OneView option
Form factor	6U rackable	10U rackable
HP Location Discovery Services	Not offered	Supported (requires a Location Discovery Services-enabled HP rack)
HP Power Discovery Services	Supported (requires an HP Power Discovery Services-enabled power system)	Supported (requires an HP Power Discovery Services-enabled power system)
Input voltage	Low-line: 100 to 120 VAC High-line: 200 to 240 VAC High voltage: Not offered. DC: −36 to −72 VDC	Low-line: Not offered High-line: 200 to 240 VAC High voltage: 277 VAC, 380 VDC DC: −40 to −60 VDC, 380 VDC
Single-phase model	Rated input voltage: 100 to 120 VAC and 200 to 240 VAC Power connection: One IEC-320 C14 power connector per installed power supply Available power supplies: Hot-plug Common Slot Platinum Plus 1,200 W (minimum one, maximum six) Maximum power output: Up to 7,200 W theoretical One six-foot IEC C13–C14 power cable included per power supply	Rated input voltage: 200 to 240 VAC Power connection: Six IEC-320 C20 power connectors Available power supplies: Hot-plug 2,650 W and 2,400 W Platinum, Hot-plug 2,400 W Gold (minimum one, maximum six) Maximum power output: Up to 15,900 W theoretical One six-foot IEC C19–20 power cable included per power supply

Technical specifications (continued)

	HP BladeSystem c3000 Platinum Enclosure	HP BladeSystem c7000 Platinum Enclosure
Three-phase North America and Japan model	Not offered	Rated input voltage: 200 to 208 VAC line to line, three-phase delta Power connection: Two 3.05 m (10 ft) power cables with NEMA L15–30p connectors Available power supplies: Hot-plug 2,650 W and 2,400 W Platinum, Hot-plug 2,400 W Gold (minimum three, maximum six) Maximum power output: Up to 15,900 W theoretical
Three-phase international model	Not offered	Rated input voltage: 380 to 415 VAC line-to-line, 220 to 240 VAC line-to-neutral, three-Phase WYE[4] Power connection: Two 3.05 m (10 ft) power cables with IEC-309 200/380 V–240/415 V, five-pin, 6h, 16A connectors Available power supplies: Hot-plug 2,650 W and 2,400 W Platinum, Hot-plug 2,400 W Gold (minimum three, maximum six) Maximum power output: Up to 15,900 W theoretical
−48 VDC model	Rated input voltage: −36 to −72 VDC Power connection: One D-Sub power 3W3 connector per installed power supply Available power supplies: Hot-plug Common Slot 1,200 W (minimum one, maximum six) Maximum power output: Up to 7,200 W theoretical One 3M D-Sub to three-wire data center cable per power supply	Rated input voltage: −40 to −60 VDC Power connection: Terminal plug: 45DG 4AWG 1/4 2H Available power supplies: Hot-plug 2,250 W (minimum one, maximum six) Maximum power output: Up to 13,500 W theoretical
Universal AC-DC high-voltage model	Not available	Rated input voltage: 380 VDC, 277 VAC Power connection: Six APP Saf-D-Grid connectors Available power supplies: Hot-plug 2,650 W (minimum one, maximum six) Maximum power output: Up to 15,900 W theoretical

[4] Rated 220 VAC to 240 VAC line-to-neutral. The enclosure will not operate from higher line-to-line voltage with the WYE wall plug configuration. This power input module is configured to provide 220 VAC to 240 VAC to the power supplies.

Technical specifications (continued)

	HP BladeSystem c3000 Platinum Enclosure	HP BladeSystem c7000 Platinum Enclosure
Interconnects		
Ethernet (LAN)	HP Virtual Connect Flex-10/10D Module HP 6125G/XG Ethernet Blade Switch HP 6125G Ethernet Blade Switch Cisco Catalyst Blade Switch 3120G Cisco Catalyst Blade Switch 3120X Cisco B22HP Fabric Extender HP 10Gb Ethernet Pass-Thru Module HP 1Gb Ethernet Pass-Thru module	HP Virtual Connect FlexFabric-20/40 F8 Module HP Virtual Connect FlexFabric 10Gb/24-Port Module HP Virtual Connect Flex-10/10D Module HP 6125XLG Ethernet Blade Switch HP 6125G/XG Ethernet Blade Switch HP 6125G Ethernet Blade Switch HP 6120XG Blade Switch Mellanox SX1018HP Ethernet Switch Cisco Catalyst 1GbE 3120G Blade Switch Cisco Catalyst 1/10GbE 3120X Blade Switch Cisco B22HP Fabric Extender HP 10Gb Ethernet Pass-Thru Module HP 1Gb Ethernet Pass-Thru module
Fibre Channel (SAN)	HP Virtual Connect 8Gb 20-Port Fibre Channel Module HP Virtual Connect 8Gb 24-Port Fibre Channel Module HP 4Gb Fibre Channel Pass-Thru Module Brocade 8Gb SAN Switch for HP BladeSystem c-Class Cisco MDS 8Gb SAN Switch for HP BladeSystem c-Class	HP Virtual Connect 8Gb 20-Port Fibre Channel Module HP Virtual Connect 8Gb 24-Port Fibre Channel Module HP 4Gb Fibre Channel Pass-Thru Module Brocade 16Gb SAN Switch for HP BladeSystem c-Class Brocade 8Gb SAN Switch for HP BladeSystem c-Class Cisco MDS 8Gb SAN Switch for HP BladeSystem c-Class
Serial attached SCSI (SAS)	HP 6Gb SAS Switch Module	HP 6Gb SAS Switch Module
InfiniBand	Not offered	HP 4X FDR InfiniBand Managed Switch Module HP 4X FDR InfiniBand Switch Module HP 4X QDR QLogic InfiniBand Managed Switch Module HP 4X QDR QLogic InfiniBand Switch Module HP 4X QDR InfiniBand Switch Module
Enclosure dimensions		
Height	6U – 10.4 in. (265 mm)	10U – 17.4 in. (442 mm)
Width	19.1 in. (485 mm)	17.6 in. (447 mm)
Depth	32.977 in. (835 mm)	32 in. (813 mm)
Warranty	Three-year parts/three-year labor/three-year onsite	Three-year parts/three-year labor/three-year onsite

HP Factory Express provides customization and deployment services along with your storage and server purchases. You can customize hardware to your exact specifications in the factory—helping speed deployment. hp.com/go/factoryexpress

Gain the skills you need with ExpertOne training and certification from HP. With HP ProLiant training, you can accelerate your technology transition, improve operational performance, and get the best return on your HP investment. Our training is available when and where you need it, through flexible delivery options and a global training capability. hp.com/learn/proliant

Customize your IT lifecycle management, from acquisition of new IT, management of existing assets, and removal of unneeded equipment. hp.com/go/hpfinancialservices

HP Services

When technology works, business works
The challenge of virtually every IT organization is the same—to develop and maintain an agile, virtualized, and efficient server and network infrastructure that delivers the service levels your business needs.

HP Technology Services offers a comprehensive portfolio of HP Care Pack Services to help design, deploy, manage, and support your blades-based virtualized environment.

Minimum-recommended HP Care Pack offerings
• Three-year, four-hour response onsite 24x7 hardware support

• Blades Infrastructure and Enhanced Network Installation and Startup Services

Enhanced service-level HP Care Pack offerings
• Three-year Support Plus 24: Integrated 24x7 hardware and software support

• Proactive Select: Access to HP expert technical consultants; purchase service credits and obtain expertise when you need it

HP Care Pack Services benefits
• Speed deployment, delivering faster return on your investment

• Increase uptime and performance of the servers' availability to your business

• Detect and diagnose problems automatically, resulting in quick repairs—saving you time, money, and resources

For more information visit hp.com/services/bladesystem or hp.com/go/proliant/carepack

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