IBM BladeCenter PS700, PS701 and PS702 Express

Smarter Power Blades for a Smarter Planet

Highlights

- Consolidate on IBM BladeCenter Power Blades and virtualize applications to better utilize resources and amplify the already-significant advantages of BladeCenter efficiencies
- Simplifies your deployment with flexible configurations that make it easy to implement the right system and the ability to run AIX®, IBM i, and Linux® operating systems simultaneously
- Elegantly simple scalability, allows easy expansion and pay-as-you-grow flexibility for the utmost in investment protection, performance growth, and time to value
- A secure, resilient infrastructure solution that helps drive cost down, reduces risk, improves energy efficiency and enhances flexibility

Built on the proven foundation of the IBM BladeCenter® family of products—easy-to-use, integrated platforms with a high degree of deployment flexibility, energy efficiency, scalability and manageability—the BladeCenter PS700, PS701 and PS702 Express are the premier blades for 64-bit applications. Minimize complexity, improve efficiency, automate processes, reduce energy consumption and scale easily: these are the benchmarks that matter on a smarter planet. The new POWER7 processor-based PS blades automatically optimize performance and capacity at either a system or virtual machine level and benefits from the new POWER7 processor, which contains innovative technologies that help maximize performance and optimizes energy efficiency. They represent one of the most flexible and cost-efficient solutions for UNIX®, i and Linux deployments available in the market. Further enhanced by its ability to be installed in the same chassis with other IBM BladeCenter blade servers, the PS blades can deliver the rapid return on investment that clients and businesses demand.

Delivering on the promise for a highly dynamic infrastructure, the BladeCenter PS blades help in delivering superior business and IT services with agility and speed—all in a simple to manage highly efficient way. The PS700, PS701 and PS702 Express blades have been preconfigured and tested by IBM and are based on proven technology. Utilizing a 3.0 GHz 64-bit POWER7™ processor and available in a four-core, eight-core or sixteen-core configuration, they are optimized

to achieve maximum performance for both the system and its virtual machines. Couple that performance with PowerVM and you are now enabled for massive workload consolidation to drive maximum system utilization, predictable performance, and cost efficiency.

Power is effortlessly balancing workload performance

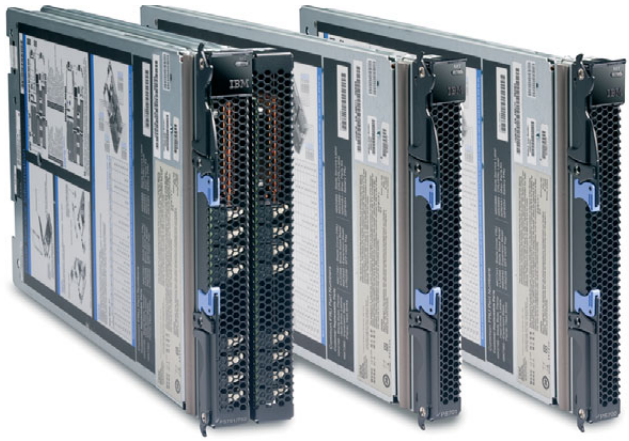
POWER7 **Intelligent Threads** technology enables workload optimization by selecting the most suitable threading mode: Single Thread (per core) or Simultaneous Multi Thread-2 or 4 modes. Consequently, **Intelligent Threads** technology can provide improved application performance. In addition, POWER7 processors can maximize cache access to cores, improving performance, using **Intelligent Cache** technology.

Power is dynamic energy optimization

EnergyScale™ Technology offers **Intelligent Energy** management features, which can dramatically and dynamically conserve power and further improve energy efficiency. These **Intelligent Energy** features enable the POWER7 processor to operate at a higher frequency if environmental conditions permit, for increased performance and performance per watt; or alternatively operate at a reduced frequency if user settings permit, for significant energy savings.

Smart BladeCenter Solutions with Power Blades

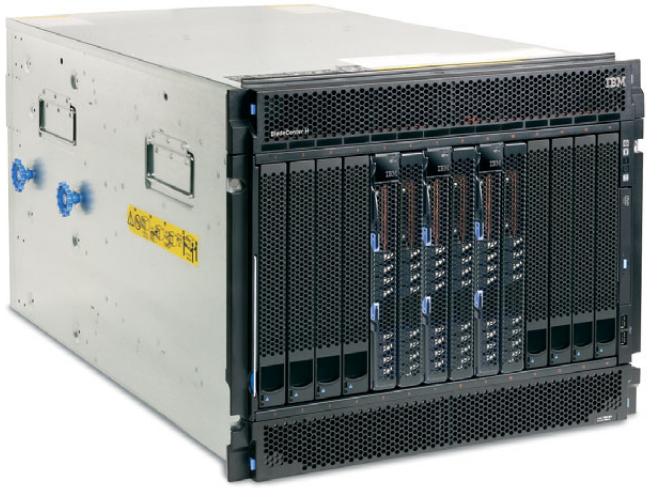
If you are looking for the perfect alternative to replacing traditional rack servers, then look no further. With a range of available PS blade choices and BladeCenter chassis supported you have the performance and scalability you need for demanding workloads of any sort. When combined with the BladeCenter S chassis, the PS blades become an ideal solution for deploying blades in an office and distributed enterprise environment. Unlike a stand-alone server that needs multiple power supplies and fans, individual systems management, numerous cables and a lot of space, IBM BladeCenter is compact and easy to use. By integrating servers, storage, networking and management, BladeCenter is helping companies in every industry sweep complexity aside.



PS Blade Family

The blades contain all the necessities to run an application—processors, memory, I/O and storage. The chassis contains shared redundant power, shared hot-swap cooling, a media tray, integrated Ethernet, storage, switching and consolidated powerful management.

Simplify. Cut costs. Boost productivity. Go green. They're all priorities for IT, and they're all driving organizations to rethink their server strategies and become more receptive to new ways to use IT. Blades are the next-generation solution, promising improvements across the board. So toss your cables and take the leap. Migrate to the blade solution that uses less energy and gives more choices and control. You have nothing to lose but complexity. IBM BladeCenter is the right choice. Open. Easy. Green.



BladeCenter H with PS Blades

Feature	Benefits
World's first scalable POWER7-based blade servers	• Maximize performance and minimize costs; consolidate workloads and virtualize on an energy-efficient platform that supports the latest POWER7 processor technology • Pay as you grow; start with a 1-processor chip (8 core) blade and upgrade to a 2-processor chip (16 core) blade when ready without scrapping your initial investment • Save time and money; standardize on a single blade platform for both 1- and 2-processor chip server application needs
Highly efficient and flexible design of IBM BladeCenter	• Densely pack more servers in a smaller space • Tailor system to meet varied business requirements with a choice of BladeCenter chassis • Lower acquisition cost and energy consumption versus traditional 1U or 2U rack servers • Integrate networking switch infrastructure for improved cabling and data center maintenance • Deploy in virtually any office environment for quiet, secure and contaminant-reduced operation
Pioneering EnergyScale technology and IBM Systems Director Active Energy Manager™ software	• Generate less heat by managing application utilization and server energy consumption • Use less energy to cool the system
Industry-leading IBM PowerVM™ virtualization technology	• Reduce infrastructure costs by running more workloads with fewer servers • Simplify IT operations by virtualizing storage, network and computing resources • Manage risk and minimize downtime with rapid provisioning and improved resilience
Innovative reliability features and systems management	• Expedite hardware repairs and reduce service time • Enable scheduled maintenance with proactive monitoring of critical system components to help reduce unplanned failures
Choice of AIX, IBM i or Linux operating systems	• Standardize on a single platform that runs the large and varied portfolio of applications that support your business • Take advantage of the power of IBM's industry-leading UNIX operating system, AIX • Utilize the Linux for Power® operating system to access the breadth of open source applications • Exploit the simplicity of the integrated IBM i operating environment

IBM BladeCenter PS700 Express at a glance

Form factor	Singlewide blade server for BladeCenter E, BladeCenter T, BladeCenter S, BladeCenter H, or BladeCenter HT chassis
Processor cores	Four 64-bit 3.0 GHz POWER7 cores with AltiVec™ SIMD and Hardware Decimal Floating-Point acceleration
Level 2 (L2) cache	256 KB per processor core
Level 3 (L3) cache	4 MB per processor core
Memory (std/max)	Base offering: 8 GB (2 x 4 GB); Express offering: 16 GB (4 x 4 GB), up to 64 GB maximum per blade, eight DIMM slots, ECC IBM Chipkill™ DDR3 SDRAM running at 1066 MHz (4 GB DIMMs) 800 MHz (8 GB DIMMs)
Internal disk storage	Two 300 or 600 GB 2.5" Serial Attached SCSI (SAS) 10K rpm non-hot-swappable disk drive; No disk drive required on base offering.
Networking	Integrated Virtual Ethernet adapter (IVE) Dual Gigabit and support for optional dual-gigabit Ethernet
I/O upgrade	One PCI-E ClOv Expansion Card and one PCI-E CFFh High Speed Expansion Card
Optional connectivity	1 and 10 Gbps Ethernet, 4 and 8 Gbps Fibre Channel, 4X InfiniBand®, SAS Expansion
PowerVM	PowerVM Express Edition: Includes Virtual I/O Server (VIOS) with Integrated Virtualization Manager and PowerVM Lx86 PowerVM Standard Edition: Adds shared processor pools and micropartitioning PowerVM Enterprise Edition: Adds active memory sharing and live partition mobility
Systems management	Integrated systems management processor, IBM Systems Director Active Energy Manager, light path diagnostics, Predictive Failure Analysis, Cluster Systems Management (CSM), Serial Over LAN, IPMI compliant
RAS features	IBM Chipkill ECC detection and correction Processor Instruction Retry Service processor with fault monitoring Hot-swappable disk bays (in BladeCenter S chassis) Hot-plug power supplies and cooling fans (on chassis) Dynamic Processor Deallocation Dynamic deallocation of logical partitions and PCI bus slots Extended error handling on PCI-E slots Redundant power supplies and cooling fans (on chassis)
Operating systems	AIX V5.3 or later, AIX V6.1 or later IBM i 6.1 or later[1] SUSE Linux Enterprise Server 10 for POWER® (SLES10 SP3) or later; SLES11 SP1 or later Red Hat Enterprise Linux 5.5 for POWER (RHEL5.5) or later; RHEL5.1 or later
High availability	IBM PowerHA™ family
System dimensions	PS700 Express blade: 9.65 in (245 mm) H x 1.14 in (29 mm) W x 17.55 in (445 mm) D; weight: 9.6 lb (4.35 kg)[2] BladeCenter H chassis: 15.75 in (400 mm) H x 17.5 in (444 mm) W x 28.0 in (711 mm) D; weight: 350 lb (159 kg)[2] BladeCenter S chassis: 12.0 in (306 mm) H x 17.5 in (444 mm) W x 28.3 in (733 mm) D; weight: 240 lb (108.9 kg)[2]
Warranty (limited)	9 hours per day, Monday through Friday (excluding holidays), next-business-day for three years at no additional cost; on-site for selected components; CRU (customer replaceable unit) for all other units (varies by country). Warranty service upgrades and maintenance are available.

IBM BladeCenter PS701 Express at a glance

Form factor	Singlewide blade server for BladeCenter S, BladeCenter H, or BladeCenter HT chassis
Processor cores	Eight 64-bit 3.0 GHz POWER7 cores with AltiVec SIMD and Hardware Decimal Floating-Point acceleration
Level 2 (L2) cache	256 KB per processor core
Level 3 (L3) cache	4 MB per processor core
Memory (std/max)	Base offering: 16 GB (4 x 4 GB); Express offering: 32 GB (4 x 8 GB), up to 128 GB maximum per blade, sixteen DIMM slots, ECC IBM Chipkill DDR3 SDRAM running at 1066 MHz (4 GB DIMMs) 800 MHz (8 GB DIMMs)
Internal disk storage	One 300 or 600 GB 2.5" Serial Attached SCSI (SAS) 10K rpm non-hot-swappable disk drive; No disk drive required on base offering
Networking	Integrated Virtual Ethernet adapter (IVE) Dual Gigabit and support for optional dual-gigabit Ethernet
I/O upgrade	One PCI-E ClOv Expansion Card and one PCI-E CFFh High Speed Expansion Card
Optional connectivity	1 and 10 Gbps Ethernet, 4 and 8 Gbps Fibre Channel, 4X InfiniBand, SAS Expansion
PowerVM	PowerVM Express Edition: Includes Virtual I/O Server (VIOS) with Integrated Virtualization Manager and PowerVM Lx86 PowerVM Standard Edition: Adds shared processor pools and micropartitioning PowerVM Enterprise Edition: Adds active memory sharing and live partition mobility
Systems management	Integrated systems management processor, IBM Systems Director Active Energy Manager, light path diagnostics, Predictive Failure Analysis, Cluster Systems Management (CSM), Serial Over LAN, IPMI compliant
RAS features	IBM Chipkill ECC detection and correction Processor Instruction Retry Service processor with fault monitoring Hot-swappable disk bays (in BladeCenter S chassis) Hot-plug power supplies and cooling fans (on chassis) Dynamic Processor Deallocation Dynamic deallocation of logical partitions and PCI bus slots Extended error handling on PCI-E slots Redundant power supplies and cooling fans (on chassis)

IBM BladeCenter PS701 Express at a glance

Operating systems	AIX V5.3 or later, AIX V6.1 or later IBM i 6.1 or later[1] SUSE Linux Enterprise Server 10 for POWER (SLES10 SP3) or later; SLES11 SP1 or later Red Hat Enterprise Linux 5.5 for POWER (RHEL5.5) or later; RHEL6.1 or later
High availability	IBM PowerHA family
System dimensions	PS701 Express blade: 9.65 in (245 mm) H x 1.14 in (29 mm) W x 17.55 in (445 mm) D; weight: 9.6 lb (4.35 kg)[2] BladeCenter H chassis: 15.75 in (400 mm) H x 17.5 in (444 mm) W x 28.0 in (711 mm) D; weight: 350 lb (159 kg)[2] BladeCenter S chassis: 12.0 in (306 mm) H x 17.5 in (444 mm) W x 28.3 in (733 mm) D; weight: 240 lb (108.9 kg)[2]
Warranty (limited)	9 hours per day, Monday through Friday (excluding holidays), next business day for three years at no additional cost; on-site for selected components; CRU (customer replaceable unit) for all other units (varies by country). Warranty service upgrades and maintenance are available.

IBM BladeCenter PS702 Express at a glance

Form factor	Doublewide blade server for BladeCenter S, BladeCenter H, or BladeCenter HT chassis
Processor cores	Sixteen 64-bit 3.0 GHz POWER7 cores with AltiVec SIMD and Hardware Decimal Floating-Point acceleration
Level 2 (L2) cache	256 KB per processor core
Level 3 (L3) cache	4 MB per processor core
Memory (std/max)	Base offering: 32 GB (8 x 4 GB); Express offering: 64 GB (16 x 4 GB), up to 128 GB maximum per blade, sixteen DIMM slots, ECC IBM Chipkill DDR3 SDRAM running at 1066 MHz (4 GB DIMMs) 800 MHz (8 GB DIMMs)
Internal disk storage	Two 300 or 600 GB GB 2.5" Serial Attached SCSI (SAS) 10K rpm non-hot-swappable disk drive; No disk drive required on base offering.
Networking	Integrated Virtual Ethernet adapter (IVE) Dual Gigabit and support for optional dual-gigabit Ethernet
I/O upgrade	Two PCI-E ClOv Expansion Card and two PCI-E CFFh High Speed Expansion Card
Optional connectivity	1 and 10 Gbps Ethernet, 4 and 8 Gbps Fibre Channel, 4X InfiniBand, SAS Expansion
PowerVM	PowerVM Express Edition: Includes Virtual I/O Server (VIOS) with Integrated Virtualization Manager and PowerVM Lx86 PowerVM Standard Edition: Adds shared processor pools and micropartitioning PowerVM Enterprise Edition: Adds active memory sharing and live partition mobility

IBM BladeCenter PS702 Express at a glance

Systems management	Integrated systems management processor, IBM Systems Director Active Energy Manager, light path diagnostics, Predictive Failure Analysis, Cluster Systems Management (CSM), Serial Over LAN, IPMI compliant
RAS features	IBM Chipkill ECC detection and correction Processor Instruction Retry Service processor with fault monitoring Hot-swappable disk bays (in BladeCenter S chassis) Hot-plug power supplies and cooling fans (in chassis) Dynamic Processor Deallocation Dynamic deallocation of logical partitions and PCI bus slots Extended error handling on PCI-E slots Redundant power supplies and cooling fans (in chassis)
Operating systems	AIX V5.3 or later, AIX V6.1 or later IBM i 6.1 or later[1] SUSE Linux Enterprise Server 10 for POWER (SLES10 SP3) or later; SLES11 SP1 or later Red Hat Enterprise Linux 5.5 for POWER (RHEL5.5) or later; RHEL6.1 or later
High availability	IBM PowerHA family
System dimensions	PS702 Express blade: 9.65 in (245 mm) H x 2.32 in (59 mm) W x 17.55 in (445 mm) D; weight: 19.2 lb (8.7 kg)[2] BladeCenter H chassis: 15.75 in (400 mm) H x 17.5 in (444 mm) W x 28.0 in (711 mm) D; weight: 350 lb (159 kg)[2] BladeCenter S chassis: 12.0 in (306 mm) H x 17.5 in (444 mm) W x 28.3 in (733 mm) D; weight: 240 lb (108.9 kg)[2]
Warranty (limited)	9 hours per day, Monday through Friday (excluding holidays), next business day for three years at no additional cost; on-site for selected components; CRU (customer replaceable unit) for all other units (varies by country). Warranty service upgrades and maintenance are available.

For more information

To learn more about the IBM BladeCenter PS700, PS701 and PS702 Express blade servers, please contact your IBM marketing representative or IBM Business Partner, or visit the following Web sites:

- **ibm.com**/systems/bladecenter/power-based.html
- **ibm.com**/servers/aix
- **ibm.com**/systems/i/os/i5os/
- **ibm.com**/linux/power
- **ibm.com**/systems/bladecenter/solutions
- **ibm.com**/common/ssi

All performance information was determined in a controlled environment. Actual results may vary. Performance information is provided "AS IS" and no warranties or guarantees are expressed or implied by IBM. Buyers should consult other sources of information, including system benchmarks, to evaluate the performance of a system they are considering buying.

When referring to storage capacity, total TB equals total GB divided by 1,000; accessible capacity may be less.

[1] Some of the IBM BladeCenter functions may not be supported by the IBM i operating system. These are identified at. **ibm.com**/systems/power/hardware/blades/ibmi.html.

[2] Weight can vary when disks, adapters and other peripherals are installed.

IBM Systems and Technology Group
Route 100
Somers, NY 10589

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