



# IBM BladeCenter PS703 and PS704 Express

*Smarter Power Blades for a Smarter Planet*

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## 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
  - Realize innovation with a flexible, scalable architecture that lets you choose the right solution for your dynamic business and delivers 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
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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 IBM BladeCenter PS703 and PS704 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 PS703 and PS704 Express blades have been preconfigured and tested by IBM and are based on proven technology. Utilizing a 2.4 GHz 64-bit POWER7 processor and available in sixteen-core or thirty two-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.



PS703 Express



PS704 Express

## 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. 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.

Virtualizing on IBM BladeCenter allows you to create a highly flexible infrastructure that can quickly and easily adapt to business change. BladeCenter with Power blades is the only blade server solution in the industry that allows you to consolidate and simplify your Linux, UNIX and IBM i workloads on a single platform. When business transformation is your goal, BladeCenter and virtualization is the answer. Together, virtualization and BladeCenter with Power can help reduce costs, increase business agility and boost IT resiliency.

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.

Feature	Benefits
<b>World's first 32-core POWER7-based blade server</b>	<ul style="list-style-type: none"> <li>• Maximize performance and minimize costs; consolidate workloads and virtualize on an energy-efficient platform that supports POWER7 processor technology on blades</li> <li>• Save time and money; standardize on a single blade platform for both 2- and 4-processor chip server application needs</li> </ul>
<b>Highly efficient and flexible design of IBM BladeCenter</b>	<ul style="list-style-type: none"> <li>• Densely pack more servers in a smaller space</li> <li>• Tailor system to meet varied business requirements with a choice of BladeCenter chassis</li> <li>• Lower acquisition cost and energy consumption versus traditional 1U or 2U rack servers</li> <li>• Integrate networking switch infrastructure for improved cabling and data center maintenance</li> <li>• Deploy in virtually any office environment for quiet, secure and contaminant-reduced operation</li> </ul>
<b>Pioneering EnergyScale technology and IBM Systems Director Active Energy Manager™ software</b>	<ul style="list-style-type: none"> <li>• Generate less heat by managing application utilization and server energy consumption</li> <li>• Use less energy to cool the system</li> </ul>
<b>Industry-leading IBM PowerVM™ virtualization technology</b>	<ul style="list-style-type: none"> <li>• Reduce infrastructure costs by running more workloads with fewer servers</li> <li>• Simplify IT operations by virtualizing storage, network and computing resources</li> <li>• Manage risk and minimize downtime with rapid provisioning and improved resilience</li> </ul>
<b>Innovative reliability features and systems management</b>	<ul style="list-style-type: none"> <li>• Expedite hardware repairs and reduce service time</li> <li>• Enable scheduled maintenance with proactive monitoring of critical system components to help reduce unplanned failures</li> </ul>
<b>Choice of AIX, IBM i or Linux operating systems</b>	<ul style="list-style-type: none"> <li>• Standardize on a single platform that runs the large and varied portfolio of applications that support your business</li> <li>• Take advantage of the power of IBM's industry-leading UNIX operating system, AIX</li> <li>• Utilize the Linux for Power® operating system to access the breadth of open source applications</li> <li>• Exploit the simplicity of the integrated IBM i operating environment</li> </ul>

**IBM BladeCenter PS703 Express at a glance**

<b>Form factor</b>	Singlewide blade server for BladeCenter S, BladeCenter H, or BladeCenter HT chassis
<b>Processor cores</b>	Sixteen 64-bit 2.4 GHz POWER7 cores with Altivec SIMD and Hardware Decimal Floating-Point acceleration
<b>Level 2 (L2) cache</b>	256 KB per processor core
<b>Level 3 (L3) cache</b>	4 MB per processor core
<b>Memory (std/max)</b>	Base offering: 16 GB (4 x 4 GB); Express offering: 32 GB (4 x 8 GB), up to 256 GB maximum per blade, sixteen DIMM slots, ECC IBM Chipkill DDR3 SDRAM running at 1066 MHz (4 GB DIMMs) 1066 MHz (8 GB DIMMs)
<b>Internal disk storage</b>	One 300 or 600 GB 2.5 in. Serial Attached SCSI (SAS) 10K rpm non-hot-swappable disk drive or two 1.8 in. 177 GB Solid State Disks; No disk drive required on base offering
<b>Networking</b>	Integrated dual gigabit Ethernet ports. Virtualized ethernet provided by PowerVM VIOS
<b>I/O upgrade</b>	One PCI-E CIOv Expansion Card and one PCI-E CFFh High Speed Expansion Card
<b>Optional connectivity</b>	1 and 10 Gbps Ethernet, 4 and 8 Gbps Fibre Channel, 4X InfiniBand, SAS Expansion
<b>PowerVM</b>	PowerVM Express Edition: Supports 2 VMs/server and includes Virtual I/O Server (VIOS) and PowerVM Lx86 PowerVM Standard Edition: Scales to 10 VMs/core and adds suspend/resume and shared storage pools PowerVM Enterprise Edition: Adds active memory sharing and live partition mobility
<b>Systems management</b>	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
<b>RAS features</b>	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)
<b>Operating systems</b>	AIX V5.3, V6.1 or AIX 7.1 IBM i <sup>®</sup> 7.1 or 6.1.1 SUSE Linux Enterprise Server SLES11 SP1 or later Red Hat Enterprise Linux 5.6 for POWER or later; RHEL6.0 or later
<b>High availability</b>	IBM PowerHA family
<b>System dimensions</b>	PS703 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 lbs (4.35 kg) <sup>2</sup> 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 lbs (159 kg) <sup>2</sup> 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 lbs (108.9 kg) <sup>2</sup>
<b>Warranty (limited)</b>	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 PS704 Express at a glance**

<b>Form factor</b>	Doublewide blade server for BladeCenter S, BladeCenter H, or BladeCenter HT chassis
<b>Processor cores</b>	Thirty two 64-bit 2.4 GHz POWER7 cores with Altivec SIMD and Hardware Decimal Floating-Point acceleration
<b>Level 2 (L2) cache</b>	256 KB per processor core
<b>Level 3 (L3) cache</b>	4 MB per processor core
<b>Memory (std/max)</b>	Base offering: 32 GB (8 x 4 GB); Express offering: 64 GB (8 x 8 GB), up to 512 GB maximum , thirty two DIMM slots, ECC IBM Chipkill DDR3 SDRAM running at 1066 MHz (4 GB DIMMs) 1066 MHz (8 GB DIMMs)
<b>Internal disk storage</b>	Two 300 or 600 GB 2.5 in. Serial Attached SCSI (SAS) 10K rpm nonhot-swappable disk drive or four 1.8 in. 177 GB Solid State Disks; No disk drive required on base offering.
<b>Networking</b>	Integrated quad gigabit Ethernet ports. Virtualized ethernet provided by PowerVM VIOS
<b>I/O upgrade</b>	Two PCI-E CIOv Expansion Cards and two PCI-E CFFh High Speed Expansion Cards
<b>Optional connectivity</b>	1 and 10 Gbps Ethernet, 4 and 8 Gbps Fibre Channel, 4X InfiniBand, SAS Expansion
<b>PowerVM</b>	PowerVM Express Edition: Supports 2 VMs/server and includes Virtual I/O Server (VIOS) and PowerVM Lx86 PowerVM Standard Edition: Scales to 10 VMs/core and adds suspend/resume and shared storage pools PowerVM Enterprise Edition: Adds active memory sharing and live partition mobility
<b>Systems management</b>	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
<b>RAS features</b>	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)
<b>Operating systems</b>	AIX V5.3, V6.1 or AIX 7.1 IBM i <sup>®</sup> 7.1 or 6.1.1 SUSE Linux Enterprise Server SLES11 SP1 or later Red Hat Enterprise Linux 5.6 for POWER or later; RHEL6.0 or later
<b>High availability</b>	IBM PowerHA family
<b>System dimensions</b>	PS704 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 lbs (8.7 kg) <sup>2</sup> 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 lbs (159 kg) <sup>2</sup> 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 lbs (108.9 kg) <sup>2</sup>
<b>Warranty (limited)</b>	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 PS703 and PS704 Express blade servers, please contact your IBM marketing representative or IBM Business Partner, or visit the following websites:

- [ibm.com/systems/bladecenter/power-based.html](http://ibm.com/systems/bladecenter/power-based.html)
- [ibm.com/servers/aix](http://ibm.com/servers/aix)
- [ibm.com/systems/i/os/i5os/](http://ibm.com/systems/i/os/i5os/)
- [ibm.com/linux/power](http://ibm.com/linux/power)
- [ibm.com/systems/bladecenter/solutions](http://ibm.com/systems/bladecenter/solutions)
- [ibm.com/common/ssi](http://ibm.com/common/ssi)



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April 2011  
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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.



Please Recycle

<sup>1</sup> 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](http://ibm.com/systems/power/hardware/blades/ibmi.html).

<sup>2</sup> Weight can vary when disks, adapters and other peripherals are installed.

