

*POWER = MANAGEABILITY + PERFORMANCE*



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## IBM Power Systems Announcement Overview

IBM Power Systems

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Introducing a new modular Power Blade server, plus faster processors and more control for your dynamic infrastructure

The graphic features a grid of images: a server blade, a blue square, the AIX logo, a yellow square, the 'i for Business' logo, a man's portrait, a server tower, a green square, and the Linux logo.

Today, IBM announced new Power Systems™ blades and servers, virtualization software and POWER6+™ technology, all designed to help companies build, manage and maintain a 21st Century dynamic infrastructure. The new hardware and software offers Power Systems clients greater efficiency through intelligent management of their resources, helping them to reduce operational and energy costs and improve performance of their systems at the same time.

"With today's announcements, we're helping our clients take the right steps today to ensure a more productive tomorrow," said Ross Mauri, general manager, IBM Power Systems. "We're introducing leading Power Systems technology, products and services, with better performance, efficiency and reliability than ever before. Our goal is to help companies gain business insights and work smarter towards a more dynamic infrastructure."

### BladeCenter JS23 and JS43

Built on the promise of the IBM BladeCenter® family of products--easy-to-use, integrated platforms with a high degree of deployment flexibility, scalability, and manageability--the new BladeCenter JS23 and JS43 Express are the premier blades for 64-bit applications. Further enhanced by their ability to be installed in the same chassis with other BladeCenter servers, the JS23 and JS43 are designed to deliver the rapid return on investment that businesses demand.

The BladeCenter JS23 and JS43 blade servers are ideal for infrastructure consolidation, virtualization, and demanding applications that require scalable performance and high memory capacity. They use IBM POWER6+ processor technology and provide one of the most flexible and cost-efficient solutions for UNIX®, i and Linux deployments available in the market. The 4-core JS23 offers elegantly simple scalability, investment protection and performance growth by allowing easy expansion into the 8-core JS43. The BladeCenter JS23/JS43 is a secure,

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resilient and dynamic infrastructure solution that helps drive cost down, reduces risk, improves energy efficiency and enhances flexibility.

The JS23 and JS43 use 4.2 GHz 64-bit POWER6+ processors including a new 32 MB Level 3 cache for each core pair, faster and more reliable double data rate 2 (DDR2) memory options and support for eight to 16 memory DIMM slots along with Serial Attached SCSI (SAS) disk subsystem and Solid State Disk Technology. All Power blades include built-in support for IBM PowerVM™ for advanced virtualization features. The JS23 and JS43 offer a blade server solution for driving demanding performance and memory-intensive workloads, such as virtualization and infrastructure consolidation, database and transaction processing, and high performance computing (HPC) applications.

IBM also announced virtual tape support for IBM i and BladeCenter implementations, simplifying backup and restore processing as well as the migration from a tower/rack system to a blade environment.

### **Power 520 and Power 550 Express Server Enhancements**

POWER6+ processors are also being introduced into the Power 520 and Power 550 Express servers. The IBM Power 520 Express adds 2- and 4-core 4.7 GHz models that are designed to deliver outstanding business value to smaller and mid-sized businesses or to meet the needs of many distributed enterprise applications. It offers improved price/performance in a commercial IT environment; a breadth of available applications; superior reliability, availability, serviceability (RAS) characteristics architected to avoid, detect and recover from errors to achieve near-continuous availability; and EnergyScale™ technologies and software tools to measure energy use.

While providing the same capabilities as the Power 520, the Power 550 Express now provides 2-, 4-, 6- or 8-core 5.0 GHz models for even more configuration flexibility to meet most capacity and growth requirements. The Power 550 is an ideal mid-size database or application server.

The Power 520 and Power 550 Express servers offer a choice of operating environments in either deskside or 4U rack-mount form factors. These are some of the new features now available on the Power 520 and Power 550:

- 69 GB Solid State Disk Drives, both 2.5-inch and 3.5-inch
- New DASD backplanes for 3.5-inch DASD/SATA DVD/Tape, one without an external SAS port and one with an external SAS port
- A new GX Dual-port 12X Channel Attach Adapter

The Power 520 Express server also includes a Central Electronic Complex (CEC) enclosure that accommodates small form factor (SFF) 2.5-inch disks with the addition of a DASD backplane. The Power 550 Express server also includes two new SFF disk options -- a 69.7 GB 15K RPM drive for the IBM i operating system or a 73.4 GB 15K RPM drive for the IBM AIX or Linux operating systems.

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## **POWER6+ Technology**

IBM is announcing that the POWER6+ microprocessor, the next milestone in IBM's technology roadmap, is being used in the new BladeCenter JS23/43, the new 4.7 GHz model of the Power 520 and the new 5.0 GHz model of the Power 550. The POWER6+ processor has also been shipping in the 3.6 GHz model of the Power 560, the 4.4 and 5.0 GHz models of the 16-core Power 570 and the 4.2 GHz model of the 32-core Power 570 since they were announced last October. This is further substantiation of IBM's consistency in delivering on the POWER processor technology roadmap. These new processor options deliver up to 39% performance improvement over the original POWER6 processors introduced in 2007 and the 1st half of 2008.

In addition to increased performance, POWER6+ adds eight new memory keys, enhancing a key resiliency feature that is especially important for virtualized environments. POWER6+ has 16 memory keys (8 kernel, 7 user, 1 hypervisor) while POWER6™ has 8 (7 kernel, 1 user). Memory keys are a technology that the IBM System z® mainframe has used for years and Power is leading the implementation for UNIX environments. These keys give the computer the ability to segment more memory for database and other software applications. RAS improvements like these provide robust capabilities that allow Power Systems to manage the flow of information traffic more effectively.

## **Enhanced Virtualization**

Businesses are increasingly turning to virtualization software to reduce their total number of servers, decrease data center floor space, control costs and create a cornerstone for overall corporate green initiatives. PowerVM, IBM's virtualization solution, is now enabled for the first time with Active Memory Sharing, an advanced technology that allows memory to automatically flow from one logical partition to another for increased utilization and flexibility of memory usage. With this memory virtualization enhancement for POWER6 and POWER6+ processor-based servers and blades, partitions can share a pool of memory and have that memory automatically allocated based on system workload demands.

PowerVM Active Memory Sharing is designed to increase memory utilization on systems that are running partitions with variable memory requirements. Instead of dedicating memory to partitions, Active Memory Sharing can automatically flow the memory between partitions as their memory demands change. For example, systems with partitions that serve different parts of the world or day and night workloads can have memory automatically moved from the partition that is winding down to the partition that is ramping up, improving memory utilization and system throughput.

This new virtualization feature is optionally configurable on a partition basis, enabling Power servers to support a combination of dedicated and shared memory partitions. Active Memory Sharing is provided with PowerVM Enterprise Edition.

Other PowerVM enhancements also include:

- Virtual tape support for IBM i and SUSE Linux Enterprise Server 11
- VIOS support for solid state drives (SSD), the DS5000 and XIV storage systems

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## **Linux Enhancements**

The following items are included in the April 2009 Linux announcements:

- Novell Announces SLES 11 with the new per socket pricing model
- Making it easier to order, install and migrate Linux applications to Power
- Enhanced storage support for Linux

Until Power announces SLES 11 in the AAS channel, Power customers can go directly to Novell to purchase SLES 11. For detailed information on what is being announced new with SLES 11, visit the following web site: <http://www.novell.com/products/server/> .

Linux for Power Systems clients can now obtain a one-year or three-year renewal subscription for Red Hat Enterprise Linux (RHEL) from IBM. Previously, Power Systems clients that purchased a one-year or three-year RHEL subscription from IBM were required to go directly to Red Hat, Inc. when their original one-year or three-year subscription expired.

Also, clients with an installed Power Systems server that did not order SUSE Linux Enterprise Server for POWER (SLES) at the time of the Power Systems hardware purchase, can now order SLES for that system from IBM. Previously, IBM clients could only obtain a SLES operating system subscription from IBM when it was purchased with IBM hardware or with a processor upgrade for installed hardware.

IBM also offers the option to have SUSE Linux Enterprise Server 10 for POWER preloaded on select Power Systems servers. Save time and leverage IBM expertise by allowing IBM to install Linux in the factory prior to shipping the server. This option is available for IBM Power blades through Power 570 servers.

With this announcement, PowerVM Lx86 V1.3.1 now enables SLES 11 and RHEL 5.3 Linux x86 applications to run on Power alongside AIX, i and Linux on Power servers. For more information, please visit: <http://www.ibm.com/systems/power/software/virtualization/editions/lx86/index.html>

In 2007, EMC began providing Linux on Power support for Symmetrix and CLARiiON storage systems and for Symmetrix software and EMC ControlCenter. EMC has recently enhanced the offering by adding support for CLARiiON software and EMC PowerPath running with Linux on Power systems. For more information please visit:

<http://www.emc.com/partners/global-alliances/ibm.htm>

## **I/O Enhancements for Power Systems Users**

IBM announced new energy-efficient solid state drives for its Power Systems line, offering faster I/O response time than traditional disk drives to help clients increase both performance and energy savings. Unlike traditional hard disk drives which are often run at 50 percent or less of their storage capacity to help maintain consistent performance, SSDs can be run much closer to 100 percent storage capacity and still provide excellent performance. The new drives will be supported on all POWER6 and POWER6+ systems, from blades to enterprise servers. IBM i provides an advanced, easy-to-use set of integrated management functions that allow clients to effectively integrate SSD technology into their shops.

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In addition, IBM also introduced several solutions for clients deploying a more dynamic infrastructure, including:

- A new 1.5 GB cache SAS disk controller with enhanced performance for IBM i applications, enabling full transition to a more cost-effective SAS-based disk infrastructure. The new controller provides significant performance and price enhancements, and supports both POWER5 and POWER6 clients.
- New 12X I/O drawers expand server I/O performance and capability in both 19-inch and 24-inch environments by supporting higher-speed connections to the server and by supporting PCIe 8x adapters and SFF disks. The 24-inch I/O drawer is available with or without SFF disk bays. With the new 24-inch 12X I/O drawers, the Power 595 supports PCIe adapters previously available on other POWER6 servers.

### **IBM i Enhancements**

- IBM i adds support for the following features:
  - IBM i 6.1 partitions on BladeCenter JS12, JS22, JS23, and JS43 blades support virtual tape which simplifies backup and restore processing.
  - The BladeCenter S SAS RAID Controller Module is supported with POWER6 processor-based blades with the BladeCenter S chassis.
  - The i Edition Express for BladeCenter S configuration has been updated to increase the minimum memory from 2 GB to 4 GB on the BladeCenter JS12 Express blade and to include a new Intelligent Copper Pass-Thru Module and the preload of IBM i.
  - IBM i 5.4 and 6.1 support the 69 GB Solid State Drive (SSD) and the IBM i storage manager has been enhanced to maximize the impact of high performing SSD, designed to improve the throughput of your IBM i system.
  - IBM i 5.4 and 6.1 support the high performance, large cache PCI-X SAS disk controller.
  - IBM i 6.1 supports PowerVM Active Memory Sharing.

There is also an IBM Temporary Software License for i, which offers a low-cost approach to temporary licensing of licensed programs and options, now enables you to license i5/OS and IBM i processors, users, and application servers as qualified products. This gives you greater flexibility to temporarily increase the server workload capacity utilizing i5/OS or IBM i during migrations of applications and temporary high-workload periods. Licenses may be purchased with a one-time charge in monthly increments of one to 12 months. If more than 12 months of use is anticipated, permanent licensing should be purchased.

IBM also announced DB2<sup>®</sup> Web Query business intelligence solutions for IBM i, with new spreadsheet plug-in and faster integration for both DB2 and MS SQL Server based data.

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## **POWER5/POWER5+ Enhancements**

SAS disk and smart Fibre Channel disk capability is now supported on IBM POWER5/POWER5+ systems. SAS disk capability allows POWER5/POWER5+ systems to take advantage of the newer SAS disk technology used on IBM POWER6 machines. Clients can stop investing in incremental SCSI disk drives and instead invest in SAS drive technology for higher disk performance. They also gain longer-term capability to acquire their disk drives from IBM, as IBM is withdrawing SCSI disk drives from marketing later in 2009.

Smart Fibre Channel IOA support (IOP-less) with IBM i 6.1 can offer POWER5/POWER5+ users a significantly faster SAN disk attachment while using fewer PCI slots. The IBM DS8300, DS8100, and DS6800 are all supported.

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When referring to storage capacity, total TB equals total GB divided by 1000; accessible capacity may be less.

The IBM home page on the Internet can be found at <http://www.ibm.com>.

The IBM Power Systems home page on the Internet can be found at <http://www.ibm.com/systems/p/>.

The IBM BladeCenter home page on the Internet can be found at <http://www.ibm.com/systems/bladecenter/power-based.html>.

The IBM Linux on POWER home page on the Internet can be found at <http://www.ibm.com/systems/linux/power/>.

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